

1995

# Patterns and predictors of depressive symptoms among the elderly

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Patterns and Predictors of Depressive Symptoms  
Among the Elderly

by

Qiaoming Liu

A Dissertation Submitted to the  
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Requirement of the Degree of  
DOCTOR OF PHILOSOPHY

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Ames, Iowa

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## CHAPTER 1. INTRODUCTION

This study combines stress theory and the life course perspective to examine patterns and predictors of depressive symptoms in old age. Much of the research on depressive symptoms examines patterns across the life course, treating the elderly as a single category. While this perspective demonstrates important contrasts across the life course, it tends to ignore important variation that occurs within the age range typically considered to be the elderly (Feinson, 1985; Newmann, 1989; Bould, Sanborn, and Reif, 1989; Newmann, Engel, and Jensen, 1991). This study will explore patterns and develop a model which predicts depressive symptoms among three segments of the elderly population: the pre-retired old (those age 55 to 64), the young old (those age 65 to 74), and the very old (those age 75 or older).

## Background

Beginning in the early 1960s, community surveys attempted to identify subgroups of people who were more likely to experience psychological distress (e.g., Gurin,

Veroff, and Feld, 1960; Srole, Langner, Michael, Opler, and Rennie, 1962). These studies, and many others which appeared in the late 1960s and the early 1970s (e.g., Dohrenwend and Dohrenwend, 1969; Warheit, Holzer, and Schwab, 1973), found four basic patterns of distress: 1) men are less distressed than women; 2) married persons are less distressed than the unmarried; 3) higher income, education and occupation prestige are related to less distress; and 4) undesirable life events are associated with more distress. Until the late 1970s, most research on distress continued in this tradition. Studies attempted either to confirm the established patterns, to rule out spurious effects of other variables, or to explore whether social causation or social selection explains the established patterns (Mirowsky and Ross, 1989a). Most sociologists agree that empirical evidence supports the social causation argument, with the possible exception of severe disorders such as schizophrenia (Mirowsky and Ross, 1989a; Aneshensel, Rutter, and Lachenbruch, 1991; Aneshensel, 1992). More specifically, social causation perspectives argue that lower status groups are more likely to have higher rates of mental distress because they are more likely to be exposed to and/or to be more vulnerable to hard or traumatic life events. This is also

because they have restricted access to various resources which may combat difficult life circumstances and related mental health consequences (e.g., Dohrenwend and Dohrenwend, 1969; Pearlin and Johnson, 1977; Kessler, 1979b; Kessler and Essex, 1982; Kessler and McLeod, 1984; Newmann, 1986; Mirowsky and Ross, 1992). Social selection perspectives, however, argue the reason that lower status groups have a higher rate of mental distress is not because of their lower social status, but because of their poorer mental health. For example, the unmarried are more likely to have higher rates of depression because they are selectively less able to get married or to stay married (Pearlin and Johnson, 1977). More recently, researchers have shifted their attention toward exploring and explaining new patterns of distress. One of the patterns receiving considerable attention is that between aging and psychological distress.

In the 1960s, gerontologists began to pay attention to demographic changes (both current and projected) taking place in the late 20th and early 21st centuries. At the beginning of this century, four percent of the population was in the 65 or older age category. By the end of the century, 13 percent will be in that age category, and this number is projected to reach 22 percent by 2030.

Furthermore, the elderly population itself is aging. This is because the oldest segment of the elderly population is growing more rapidly than the elderly population as a whole. For example, four percent of the elderly were over age 85 in 1930. This percentage increased to 10 by 1990, and by 2010 it will reach 15.5 percent. Although the percentage will decline temporarily after 2010 as the baby boom cohort begins to enter old age, it will again grow rapidly as the baby boom advances into the old-old category (Myers, 1990; Uhlenberg, 1992).

These demographic changes will have an enormous impact on people's lives, including their physical and mental health (e.g., Uhlenberg, 1980, 1992; Hagestad, 1988). We can take the prevalence of long-term disability in America as an example. Under the most conservative estimates, the population of older people experiencing disability is projected to increase from the current 5.1 million to 9.4 million by 2000, and to 14.8 million by 2040 (Kunkel and Applebaum, 1992). Such rapid aging of the American population and its impact on individuals is probably one of the major factors that has stimulated research interest in aging and mental health, including the association between aging and depression.

Several major limitations exist in studies which examine aging and psychological health in general, and aging and depression in particular. Stress theory has often been used to study depression. Specifically, hypotheses incorporating differential exposure, differential vulnerability, and differential resource arguments have often been used to explain gender differences (e.g., Kessler, 1979b; Kessler and McLeod, 1984; Newmann, 1986; Conger, Lorenz, Elder, Simons, and Ge, 1993) and class differences in depression (e.g., Langner and Michael, 1963; Kessler, 1979b; Turner and Noh, 1983; Ulbrich, Warheit, and Zimmerman, 1989; Murrell and Norris, 1991). With few exceptions (e.g., Thoits, 1984), most studies on patterns of aging and depression, and studies that explain depressive symptoms among the elderly, do not explicitly or systematically use theoretical perspectives to guide their research.

A second limitation of many gerontological studies in general (e.g., Nelson and Dannefer, 1992), and studies of aging and depression in particular (e.g., Newmann, 1989), is that diversity among the elderly is often neglected in designing, analyzing, and interpreting research findings among different groups of older people. According to Kessler, Foster, Webster, and House (1992:119), in the

"most thorough and thoughtful synthesis of currently available data on the relationships between age and screening scales of depressive symptoms", Newmann (1989) finds that few studies have been designed specifically to assess depressive symptoms among different groups of older people. Thus, studies often present an oversimplified picture of aging and depression among the elderly. This is also one of the major reasons that studies in this area have produced so many contradictory findings. The present study addresses this limitation by incorporating stress theory with the life course perspective. With its emphasis on diversity and complexity, the life course perspective can be used in conjunction with stress theory to generate hypotheses addressing heterogeneity among the elderly.

A third limitation is that studies of stress-resources-distress models for different status groups (such as between men and women or between younger and older people) often fail to recognize the complex relationships among stressors, resources, and stress outcomes. Researchers often use global measures of life stress, such as life event checklists or global measures of social support, which may partially produce contradictory results about the relationships among the three factors. These researchers must make implicit



assumptions that all stressful life events in their summary measures have the same effect on stress outcomes and on the resources under study, or that all the dimensions (or types) of social support also have the same effects on stress outcomes (e.g., Krause and Jay, 1991). Moreover, some researchers study only one or two types of mental health outcomes, such as depression, and then generalize their findings to other types of mental illness, or to mental health in general. Researchers who tend to overgeneralize their findings also make a simplistic assumption that the effect of stressors and the impact of resources on one type of mental health outcome is the same for other types of mental health outcomes, or is the same for mental health in general. These assumptions, which are either wrong or too simplistic, have been explicitly challenged by many researchers (e.g., Dohrenwend and Dohrenwend, 1976; Krause and Jay, 1991; Aneshensel et al., 1991).

Beginning in the 1970s, Dohrenwend and Dohrenwend (1976) recognized this shortcoming in studies of gender differences in mental health and gave some advice on how to deal with this problem:

We should discard undifferentiated, unidimensional concepts of psychiatric disorder and with them false questions about whether women or men are more prone to "mental illness".

In their place we would substitute an issue posed by the relatively high female rates of neurosis and manic-depressive psychosis, with their possible denominator of depressive symptomatology, and the relative high male rates of personality disorders with their possible common denominator of irresponsible and antisocial behavior. The important question then becomes, what is there in the endowment and experiences of men and women that pushes them in these different deviant directions? (1453).

This advice should still be applied to the study of age differences in mental health, including age differences in depression. In studies of age differences in depression, there are two basic measures, a diagnostic measure of clinical depression and a standard screening measure of depressive symptoms. When used separately, the two types of measures produce two different patterns of aging and depression. Studies using the clinical diagnostic approach to assess depression show a positive linear and negative curvilinear trend, with the highest depressive symptoms among middle age cohorts. Studies using the screening scale approach, however, yield precisely the opposite pattern, a negative linear and positive curvilinear trend, with the highest depressive symptoms among the youngest and oldest age cohorts (Newmann, 1989). Many sociologists maintain that diagnostic measurement of depression impedes our understanding of the nature, causes, and consequences of mental health, and that a screening measure of depression

is a more useful indicator of subjective well-being for a sociological study of the depression process (Pearlin, 1989; Mirowsky and Ross, 1989b; Mirowsky, 1992). There are several reasons for this. First, using measures such as the Diagnostic Interview Schedule (Robins, Helzer, Croughan, and Ratcliff, 1981), the diagnostic approach implicitly assumes that depression is either present or absent, rather than varying on some continuum of severity or intensity. In contrast, using measures like the National Institute of Mental Health Center for Epidemiological Studies Depression Scale (CES-D), the screening approach assumes that depression varies on some continuum. Thus, the second approach is better for sociologists who need to assess a full range of symptoms, rather than just extreme symptoms that justify clinical action and "rank people according to the intensity of their distress" (e.g., Pearlin, 1989:253; Kessler et al., 1992). Second, the diagnostic approach rules out much of the sadness and malaise attributable to environmental and social context factors, such as grief, poverty, or poor physical health. Thus, the likelihood of qualifying for a clinical diagnosis of depression goes down with age (Newmann, 1989; Mirowsky and Ross, 1992). However, "the low or declining odds of qualifying for a psychiatric

diagnosis of major clinical depression among older age cohorts does not necessarily imply low or declining average level of depression" (Mirowsky and Ross, 1992:192). Moreover, environmental and social context factors are actually what sociologists are interested in studying (Pearlin, 1989; Mirowsky, 1992). Third, the screening approach avoids the confounding of diagnostic preconceptions with empirical correlation, thus, researchers can be more certain that the results reflect subject response rather than observer presupposition. This study focuses on depressive symptoms because efforts are directed toward the identification of circumstances under which groups of elderly are more likely to have a high level of depressive symptoms and why they are more likely to be depressed. In order to do this, we move away from global measures to examine exposure to and impact of specific stressors and resources on depressive symptoms as a specific type of mental health outcome.

Although studies of age difference in mental health, especially in depression, are confounded by various methodological and theoretical problems, there is strong and consistent evidence for differences between the young and the old. While the elderly tend to have a lower level of clinical depression than younger persons, they still

experience a significantly high level of depressive symptoms. Among the elderly, the very old are the most likely to report depressive symptoms (Newmann, 1989; Mirowsky and Ross, 1989a, 1992; Kessler et al., 1992). There is little reason to assume that age directly affects depressive symptoms (Feinson, 1985; Mirowsky and Ross, 1992). For example, based on two large, nationally representative samples, Kessler and his colleagues (1992) find that on average, the combined effects of age and age squared explain only about one percent of the variance in depressive symptoms. Moreover, "older Americans who do not suffer personal, status, and functional losses apparently have low depression" (Mirowsky and Ross, 1989a:202). Thus, age-related increases in stressors and decreases in resources may account for much of the relationship between aging and depression (Bould et al., 1989; Gatz and Hurwicz, 1990; Newmann et al., 1991; Mirowsky and Ross, 1992).

At this point, relatively little is known about how the relationships between age-related stressors, resources, and depressive symptoms may vary among the elderly. The purpose of this study is to explore patterns and predictors of depressive symptoms among three age groups: the pre-retired old (age 55 to 64), the young old

(age 65 to 74), and the very old (age 75 or older). Specifically, three hypotheses which are often used to examine gender (Kessler, 1979a) and class differences (Langner and Michael, 1963; Murrell and Norris, 1991) in depression (differential exposure, differential vulnerability, and differential resource hypotheses) are examined for their applicability to the study of age differences in depressive symptoms.

#### Objectives of the Study

This study focuses on depressive symptoms, which are among the most common manifestations of stress (Mirowsky and Ross, 1989a). Combining stress theory with the life course perspective, the study examines how self-reported physical health, social and economic status, and various resources combine to form the depression process for people age 55 or older. A theoretical model is estimated for the elderly as a whole and separately by three age categories: the pre-retired old (those age 55 to 64), the young old (those age 65 to 74), and the very old (those age 75 or older).

One of the major objectives of this study is to determine whether separate analysis of the depression

process for these three groups can provide any additional insight into relationships among the concepts depicted in the basic model presented in Figure 1. Specifically, this study will explore 1) whether the very old have a higher level of depressive symptoms than the young old or than the pre-retired old, and whether the young old have a higher level of depressive symptoms than the pre-retired old; 2) whether with an increase in age, the elderly are more likely to report poor physical health, and whether poor self-reported health is related to a higher level of depressive symptoms after controlling for various stressors and resources; 3) whether with an increase in age, there is a stronger association between health perception and depressive symptoms among the elderly; and 4) with an increase in age, how resources are related to depressive symptoms among the elderly. The analyses in this study represent a preliminary attempt to address some of the shortcomings in the literature on the patterns and predictors of depressive symptoms among the elderly.

#### Organization of the Study

This dissertation is divided into seven chapters. Chapter I is an introduction, which specifies the

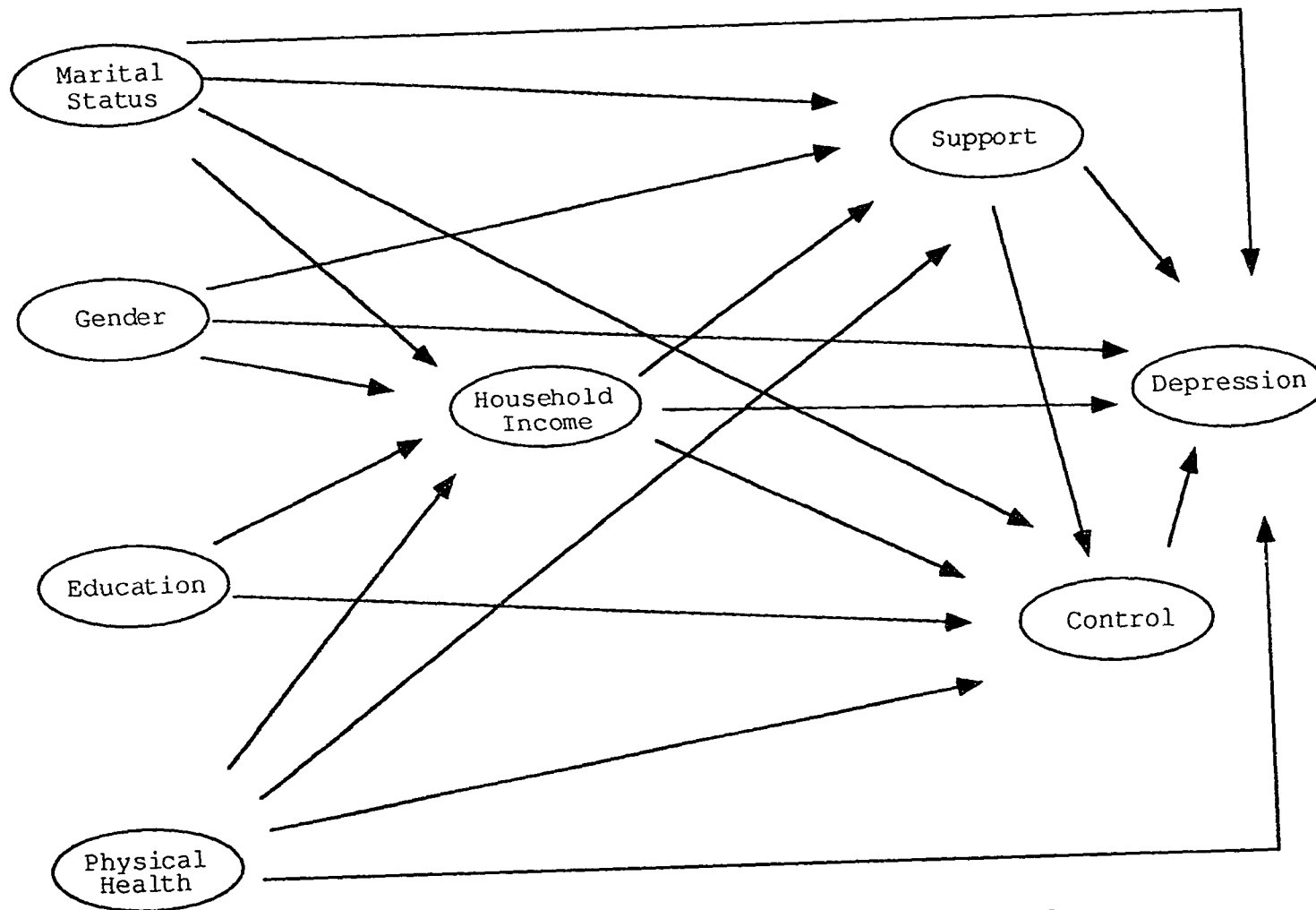


Figure 1. The Basic Theoretical Model



objectives and organization of this study. Chapter II includes a review of stress theory and the life course perspective, and a discussion of how the two bodies of literature can contribute to the study of patterns and predictors of depressive symptoms among the elderly. This chapter also discusses how differential exposure, differential vulnerability, and differential resource hypotheses can contribute to an understanding of group differences in depressive symptoms among the elderly. Chapter III reviews the literature on patterns of depression during the life course, and various predictors of depressive symptoms among the general population and among the elderly. Based on the discussion of stress theory, the life course perspective, and previous literature on stressors, resources, and depressive symptoms among the elderly, Chapter IV proposes the basic model and the hypotheses in this dissertation. Chapter V describes the sample, respondent profiles, measurement of variables, and reliabilities of various scales. Chapter VI presents analyses and results. Chapter VII concludes with a discussion of the major findings, advantages and limitations of the study, suggestions for future research, and policy implications.

## CHAPTER 2. STRESS THEORY AND THE LIFE COURSE PERSPECTIVE AND THEIR RESEARCH

### Stress Theory and Research

Sociological interest in stress research started with the desire to better understand the relationship between social locations and psychological distress (Aneshensel et al., 1991; George, 1993). Studies since the 1960s have long documented that social placement, such as gender and social class, are strongly related to the risk of mental illness, including depressive symptoms (Mirowsky and Ross, 1989a; George, 1993). Early conceptualization of the link between stress and mental health, including depressive symptoms, however, was simplistic because the primary research question was whether stressors affected stress outcomes. Over time a more complex perspective of stress and stress outcomes has evolved. The stress process is now typically seen as combining three major conceptual domains, including stressors, stress mediators (resources), and stress outcomes such as psychological distress (Pearlin, Lieberman, Menaghan, and Mullan, 1981; Aneshensel, 1992; George, 1993). Consequently, researchers

explore the conditions under which stressors affect resources and stress outcomes, and the roles of resources in the depression process.

The study of status differences, especially gender or class, in psychological distress is one of the most explored issues in stress research (Mirowsky and Ross, 1989a). There are at least three explanations as to why one group of people, such as women, are more depressed than another, such as men. These are different distribution of stressors (the differential exposure explanation), variation in response to stressors (the differential vulnerability explanation), and different distribution of resources and differential impact of resources on stress outcomes (the differential resource explanation) (e.g., Dohrenwend and Dohrenwend, 1969; Pearlin and Johnson, 1977; Kessler, 1979b; Kessler and Essex, 1982; Kessler and McLeod, 1984; Newmann, 1986; Mirowsky and Ross, 1992).

Generalized differential exposure is one explanation used by researchers to explain status differences in psychological distress. Those who use this explanation assume that greater exposure of one group to stressors is the major factor contributing to a higher level of depressive symptoms (Newmann, 1986). However, empirical

results using this approach are inconsistent. While there are many reasons for this inconsistency, at least part of the problem arises from the fact that most studies use life event scales as indicators of stressors.

Life events have occupied by far the most research attention in the past 20 years (Pearlin, 1989). Instruments used to identify life events, such as the Holmes and Rahe Social Readjustment Rating Scale (Holmes and Rahe, 1967), tend to aggregate many different life events into a single measure of exposure. Such a combination of diverse stressors into a single scale masks important variability in the distributions of various stressors and in the impacts of various stressors on various resources and stress outcomes. Moreover, it is difficult to know from this type of measure whether the exposure of one status group is pervasive or limited to a particular type of events (Kessler and McLeod, 1984; Pearlin, 1989; Thoits, 1991). This type of measure also implicitly treats all the stressors measured by the life events in the scale as though they are unrelated to social and historical context, or unrelated to the life course of the person (Thoits, 1991). Thus, a better approach is to focus on those stressors whose occurrence may vary with key socioeconomic statuses, such as age or gender, as this

may better illustrate the connections between social forces and individual well-being.

As a reaction to disappointment with the universal differential exposure hypothesis, researchers in the late 1970s turned their attention to differential vulnerability as an alternative explanation (Kessler, 1979a, 1979b). Kessler (1979a) argues that differential exposure alone can not explain the differences in psychological distress among different status groups, but rather, differential impact is a more important determinant in relationships among social class, gender, marital status, and self-reported distress. However, the empirical results obtained from this approach are also contradictory. As with differential exposure, this inconsistency may partly result from limitations of life event checklists as indicators of stressors (e.g., Aneshensel, 1992).

The first problem is that it is difficult to know from event inventories whether the vulnerability of one status group is pervasive or limited to a particular type of events. Therefore, the development of theory in this area will be advanced by more specification of this issue (Kessler and McLeod, 1984). Second, some researchers find that people in lower status groups are not always more vulnerable to psychological distress than people in higher

status group. Segregating life events into six theoretically cohesive categories, Kessler and McLeod (1984) find that women are more vulnerable to some events but not to others. For example, while women are considerably more vulnerable than men to the death of loved ones and other network events, income loss and marital disruption affect women and men equally. Third, researchers who are more selective of the events included for study or who examine the exposure of specific events find that differential exposure, rather than differential vulnerability, explains status differences in distress. Newmann (1986) finds that women are significantly more likely to be exposed to life strains associated with the absence of a spouse, social isolation, financial difficulties, and chronic health problems. However, "none of these hardships has a significantly greater impact on the depressive symptom level for women than for men" (Newmann, 1986:161). Fourth, more recent studies demonstrate that specific differential exposure and specific differential vulnerability hypotheses are complementary. Taken together, they provide a better framework for understanding status differences in psychological distress. In a study of 451 married couples in the rural midwest, Conger and his colleagues (1993)

find men report more negative financial changes and are distressed by exposure to work and financial events, while women report more undesirable network events and are more influenced by these events. Moreover, outcomes also vary according to types of emotional distress. Financial difficulties are related to increased hostility among men more than among women, while wives are more likely than husbands to report somatic complaints. Thus, although either explanation alone can explain gender differences in psychological distress, together the two help develop a better understanding of this phenomenon.

At the same time, some researchers started to explore the roles of various resources in the stress process. Economic, social, and psychological resources are among the resources that have been given the most attention. Results on the impact of stressors on resources, however, are also quite complex (Jacobson, 1986; Pearlin, 1989; Krause and Jay, 1991; Krause and Borawski-Clark, 1994). Using social support as an example, some studies find a positive relationship between life stress and social support (e.g., Krause, 1987b). Based on this finding, the argument is that stressors can mobilize resources (the resource mobilization perspective). Other studies, however, find a negative relationship between stressors

and social support (e.g., Cutrona, Russell, and Ross, 1986), suggesting that some stressors really undermine resources rather than mobilize them (e.g., Krause and Jay, 1991). Moreover, some studies fail to find any significant effect between stressors and social support (e.g., Norris and Murrell, 1987).

There are many factors which explain why researchers have produced contradictory findings in this area, and one of the major ones may be that "many investigators rely on global or aggregate measure of life stress and/or social support" (Krause and Jay, 1991:335). Those who use these types of measures implicitly assume "that all life events have the same effect on social support, and regardless of the nature of the stressor, older adults will always seek out and receive assistance from their social network members" (Krause and Jay, 1991:335). However, studies indicate that for the elderly, the relationship between a stressor and social support is very complex (e.g., Krause and Jay, 1991). This is because the relationship is often contingent upon the nature of the stressor (Krause and Jay, 1991; Krause and Borawski-Clark, 1994). For example, older people who are confronted by certain types of stressors, such as financial strain, may actually become more isolated from their support networks than those who



are not exposed to these difficulties. There are at least two reasons for this. First, it may be due to the stigmatizing or embarrassing nature of the stressor that confronts the elderly (Schulz and Williamson, 1993; Krause and Jay, 1991). Second, according to Gouldner's norm of reciprocity (Gouldner, 1960), the elderly might be afraid that they cannot reciprocate or repay the assistance they receive (Krause and Jay, 1991).

The results regarding the impact of resources on stress outcomes are also inconsistent. Some researchers argue that economic, social or psychological resources may reduce depressive symptoms (Mirowsky and Ross, 1989a; Bengtson, Rosenthal, and Burton, 1990; Brubaker, 1990). Several researchers show that social support is related to depression among the elderly (Fuller and Larson, 1980; Krause, 1987a, 1987b). Others argue that the effect of resources on distress is complex. It depends on the nature of the stressor (Krause and Borawski-Clark, 1994), the types and timing of the support (Jacobson, 1986; Ensel and Lin, 1991b), the sources of the support (Krause and Borawski-Clark, 1994), and the types of stress outcomes (Pearlin, 1989; Aneshensel et al., 1991; Conger et al., 1993). For example, based on data from a sample of women who have recently given birth, Turner and Noh (1983)

indicate that social support and personal control are important in understanding the relationship between class position and psychological distress. However, the importance of both social support and personal control varies across both class groups and stress levels. Only when social support and personal control are both high, are these variables entirely adequate to explain the relationship (Turner and Noh, 1983).

These inconsistent findings prompt many researchers (e.g., Dohrenwend and Dohrenwend, 1976; Thoits, 1987; Pearlin, 1989; Aneshensel et al., 1991; Aneshensel, 1992; Krause and Borawski-Clark, 1994) to conclude that exposure to stressors or the impact of stressors is highly specific in nature and unique to selected outcomes. These results also prompt many researchers (e.g., Krause and Jay, 1991) to conclude that variation in the distribution of resources and in the impact of resources also depends on the nature of stressors and specific stress outcomes. Thus, the stress process for different status groups is complex and universal differential exposure, universal differential vulnerability, or universal resource hypotheses alone are not able to deal with the complex phenomenon of generalized status differences in psychological distress. This is especially true for

studies which use aggregate measures of life event scales and social support.

### The Life Course Perspective

One of the major problems in stress research is that stressors "usually are selected in an arbitrary manner" (Aneshensel, 1992:19). That is to say, stressors experienced by young adults have been oversampled, while those experienced by women, minorities, and the poor have been undersampled (Thoits, 1984). Thus, one of the most important tasks in stress research is "to identify those types of stressors that arise as a consequence of social organization" (Aneshensel, 1992:23). The life course perspective explicitly advocates that stressors do not spring out of vacuum. Rather, they result from various social locations, such as social or family context, and a person's life course, which affect risks and opportunities in life (Elder, 1978). Many of the previous studies of psychological distress implicitly or explicitly suggest that to a large extent, various social locations, such as a person's life course, may determine the stressors to which that person is exposed, the impact of the stressors, the resources that person is able to utilize, and the

manner in which that person experiences the stress (e.g., Pearlin, 1989; Aneshensel, 1992; Conger et al., 1993).

According to Aneshensel (1992:19):

Locations in the social system influence the probability of encountering stressors, which in turn increase the probability of becoming emotionally distressed, these relationships may occur only among some groups, or only under certain conditions.

The life course perspective also recognizes diversity and complexity, because people's lives are complicated. The life of an individual is composed of multiple interdependent career lines, which are structured by the realities of historical time and circumstances, by the opportunities, normative pressures, and adaptive requirements of altered situations, and by those expectations, commitments, and resources that are brought to these situations. Moreover, the career lines of individuals in the family are interdependent (Elder, 1978). According to this approach, differential exposure, differential impact of a specific stressor, and differential resources with a particular manifestation of mental health can be best understood when viewed in historical or social context, or in the context of the life course of a particular individual and family. Different events may have different meanings at different points in the life span and in different social and

historical context. Thus, the effects of a particular stressor on psychological distress may be due to differential exposure, to differential impact, to differential resources, or to the particular manifestation of the stress that is studied. For example, an event may have differential consequences for persons who vary in career stages, "which suggests that stage variations are related to variations in the meaning of a situation, in adaptive resources and options, and thus in theoretical linkages between change and the life course" (Elder, 1975:186).

Life course research also focuses on important personal or historical experience to show how it may affect people's lives (Elder, 1974; Elder, 1986). For example, military service offers some men a better future (Elder, 1986). Moreover, Elder's (1974) "Children of the Great Depression" demonstrates that experience in the Great Depression varies by age, sex, rural and urban residence, ethnicity, and social class. In each case, "a historical change differentiated the life experiences of social groups within each cohort" (Elder, 1978:36).

Using the life course perspective in the study of the depression process among the elderly, it can be argued that certain stressors under specific conditions may be

very powerful in affecting individuals directly or indirectly. Moreover, the same stressor may have a different impact on them either directly or indirectly, through its effect on their risks or opportunities (resources). Thus, a particular manifestation of stress, such as depression, may be due to differential exposure to and differential vulnerability to a specific stressor, or differential exposure to and impact of the stressors on resources, or differential exposure to and impact of the resources on depressive symptoms. Thus, researchers need to be more selective in studying the stressors and resources whose occurrence varies with key social and economic locations, such as gender, age, marital status and socioeconomic status (Pearlin, 1989). Researchers also need to explore in more specific detail how differential exposure, vulnerability, and resources contribute to a particular manifestation of stress, such as depressive symptoms.

Although chronic strains, stressful events, and ambiguous events all make significant and independent contributions to the explanation of depressive symptoms for adults age 18 or older, chronic strains explain the greatest proportion of variance in depressive symptoms. This is especially true for older people (Pearlin et al.,

1981; Avison and Turner, 1988; Turner and Noh, 1988; Bould et al., 1989; Mirowsky and Ross, 1992; Roberts, Dunkle, and Haug, 1994). Several studies suggest that the relative impact of stressors varies across the life course, with chronic strains most important among the elderly and acute stress most important for younger people (Avison and Turner, 1988; Turner and Noh, 1988; Bould et al., 1989, Roberts et al., 1994). This is especially true for older people who have poor physical health, or a lower level of education or income, or who are widowed or divorced since it is very difficult at the last stage of the life course to improve their physical health and socioeconomic conditions, or to get remarried (Bould et al., 1989).

Several studies suggest (Feinson, 1985; Mirowsky and Ross, 1992), and some actually demonstrate (e.g., Gatz and Hurwicz, 1990), that poor physical health is associated with a higher level of depressive symptoms. In fact, several researchers find that physical health, whether it is measured by general health, medical conditions, or physical limitations, is by far the strongest predictor of depressive symptoms among older people (e.g., Murrell, Himmelfarb, and Wright, 1983; Mitchell, Mathews, and Yesavage, 1993). This finding prompts Murrell and his colleagues to conclude that "the importance of physical

health may have been overlooked in depression research to date" (1983:184).

This study focuses on self-reported overall physical health as one of the primary stressors faced by the elderly. This allows us to explore under what conditions differential exposure and differential impact of self-reported physical health and differential resources, such as household income, social support, and sense of control, are associated with different levels of depressive symptoms among three groups of elderly people, while controlling for other important variables, such as marital status, gender, and education. This study provides an opportunity to observe how diverse the elderly are as a group, how this diversity affects their risks and opportunities in life, and how deeply older people's levels of depressive symptoms are affected by these risks and opportunities (Pearlin, 1989; Mirowsky and Ross, 1989a).



### CHAPTER 3. PATTERNS AND PREDICTORS OF DEPRESSIVE SYMPTOMS

There has been some debate about the relationship between aging and depression for adults age 18 or older. Some researchers argue that aging and depression are not related (Gurland, 1976; Feinson, 1985). Based on a review of 18 mental health studies, Feinson (1985) concludes that assuming the elderly are at greater risk for mental health problems, including depressive symptoms, is largely a myth. She finds many studies provide evidence of no age difference in measures of mental health (Phillips, 1966; Hogarty and Katz, 1971; Gaitz and Scott, 1972; Warheit, Holzer, and Arey 1975; Weissman and Myers, 1978; Weissman and Myers, 1980; George, Landerman, and Melville, 1983; Uhlenhuth, Balter, Mellinger, Cisin, and Clinthorne, 1983). Many studies show that younger adults have significantly more mental health problems than older adults (Hogarty and Kats, 1971; Warheit et al., 1975; Comstock and Helsing, 1976; Weissman and Myers, 1980; Frerichs, Aneshensel, and Clark, 1981; Eaton and Kessler, 1981; George et al., 1983; Uhlenhuth et al., 1983). However, some studies show mixed results, with the highest

rates of mental health problems reported by the youngest and oldest age groups (Berkman, 1971; Warheit et al., 1975; Murrell et al., 1983). Other studies report that older adults have more mental health problems than younger adults (Schwab, Fennell, and Warheit, 1974; Warheit et al., 1975; Murrell et al., 1983). Finally, some studies indicate a trend toward more mental health problems reported by older adults (Gurin et al., 1960; Srole and Fisher, 1980). It is important to note that there are some flaws in the designs of most of the 18 studies, which may partially contribute to such inconsistent results. Most of these studies treat older people as a single cohort for comparison with younger groups. All 18 studies divide young people into at least two subgroups, while 14 studies treat older people as one group, such as people age 65 or older. This differential treatment suggests that an age distinction has been considered important for younger and middle-age adults, but not for older adults whose ages can range from 65 (or 60) to 100 (Feinson, 1985). This is clearly a problem because there are as many years between 60 and 100 as there are between 20 and 60 (Bould et al., 1989).

Other researchers argue that to some extent aging and depression are associated (Stenback, 1980; Klerman, 1983;

Mirowsky and Ross, 1989a, 1992; Kessler et al., 1992). For example, Mirowsky and Ross (1989a:120-121) point out:

Given that two of the social statuses most important to mental health--marriage and socioeconomic positions--are stratified by age, and that the elderly are likely to experience negative life events like retirement and widowhood that mark transitions to conditions of lower support, fewer resources, and lower control, it would be surprising if age were not associated with mental health.

Newmann (1989) comes to the same conclusion after reviewing the studies conducted between 1967 and 1987 regarding the age-depression relationship that used standard screening scales, such as the CES-D. Newmann (1989:156) stresses that contradictory findings about aging and depression seem to be largely a function of sampling or data aggregate procedures, because those studies that "a) include the full age range for persons over 65, and b) desegregate the data for age cohorts over 65" (e.g., Gurland et al., 1983; Murrel et al., 1983; Feinson, 1985) show a fairly consistent pattern of increase in scores of depressive symptoms among the old-old in contrast to the young-old age cohorts. Thus, aging is "associated with an increased risk of experiencing significant depressive symptoms if we limit our concept of aging to movement into the last two decades of life" (Newmann, 1989:156). Several of the most recent studies

which divide older people into at least two age groups and include a sufficiently large number of the very old, have consistently found the U-shaped relationship between age and depression (e.g., Gatz and Hurwicz, 1990; Kessler et al, 1992; Mirowsky and Ross, 1989a, 1992).

One of the major advantages of this study is that it has a fairly large number of elderly respondents (those age 55 or older), and a relatively large number (n=261) of the very old (those age 75 or older). This enables us to explore not only the elderly as a group, but also three groups of older people separately (the pre-retired old, the young old, and the very old). In this way, we can explore whether categorization of the elderly yields any additional insight into the complex relationship of aging and depression among people age 55 or older.

While the majority of studies suggest that the elderly tend to have a lower level of clinical depression than younger persons, they still experience a significant higher level of depressive symptoms. Among the elderly, the very old are the most likely to report depressive symptoms (Newmann, 1989; Mirowsky and Ross, 1989a, 1992; Kessler et al., 1992). While there is little reason to presume that age directly affects depression, age-related increases in stressors and decreases in resources may

account for much of the relationship between aging and depression (Bould et al., 1989; Gatz and Hurwicz, 1990; Newmann et al., 1991). There are a handful of studies that explore the predictors of depressive symptoms, including those among the elderly, and they consistently point out several important factors that are related to levels of depressive symptoms among older people, including self-reported overall physical health, demographic variables such as age, gender, marital status, and education, and various resources such as household income, social support, and sense of control (Fuller and Larson, 1980; Feinson, 1985; O'Hara, Kohout, and Wallace, 1985; Krause, 1987a, 1987b, 1987c; Gerson, Jarjoura, and McCord, 1987; Lee, 1988; Hoyt and Redmond, 1989; Moritz, Kasl, and Berkman, 1989; Ross and Mirowsky, 1989a; Mirowsky and Ross, 1989a, 1992; Mitchell et al., 1993). The following discussion is a detailed literature review of the relationships among all of these variables.

#### Physical Health and Depressive Symptoms

Aging is associated with a decline in physical health (Bould et al., 1989). With the aging of the American population, physical health of the old, especially the

very old, may be expected to decline. The future trend may be one of increasing life expectancy coupled with increasing morbidity (Bould et al., 1989; Guralnik, 1991; Kaplan, 1991; Verbrugge, 1991). According to Guralnik and Simonsick (1993:4), "there is a steeply increasing prevalence of activities of daily living (ADL) disability with an increase in age for older Americans". Moreover, stressful life events among the old-old (people age 85 or older) are often recent physical changes, and the most frequently experienced strains are related to poor physical health (Roberts et al., 1994).

Many researchers (e.g., Feinson, 1985; Turner and Noh, 1988; Schulz and Williamson, 1993) suggest that poor physical health may constitute a chronic strain that might have an important mental health implications. In a study of four-year, cross-lagged associations between self-reported physical health and self-reported mental health among a sample of patients with chronic illness, Hays, Marshall, Wang, and Sherbourne (1994:447) find that the causal direction between self-reported physical health and mental health goes "primarily from physical to mental health". Indeed, a handful of survey studies find this to be true. A longitudinal study of three groups of people (age 18 to 44, age 45 to 64, and age 65 or older) finds

that the disabled are at a dramatically higher risk of suffering from depressive symptoms for men and women of all life stages (Turner and Noh, 1988). This is also true for patients with chronic conditions (e.g., Steward, Greenfield, Hays, Wells, Rogers, Berry, McGlynn, and Ware, 1989). This may be because "at all ages, depressive symptoms may be a reaction to physical illness" (Gatz and Hurwicz, 1990:289). Thus, it is not surprising that transition to poor physical health itself has been identified as one of the most important stressors causing older people to be depressed, especially the very old (Goldberg, Comstock, and Harlow, 1988; Bould et al., 1989; Brubaker, 1990). In fact, some studies suggest that self-reported overall physical health has the strongest relationship with depression among older people (e.g., Murrell et al., 1983; Lin et al., 1986; Mirowsky and Ross, 1992).

#### Physical Health, Resources, and Depressive Symptoms

Poor physical health has been shown to undermine one's resources, such as economic resources (e.g., Pearlin and Johnson, 1977), social support (e.g., Lin, Dean and

Ensel, 1986), and sense of control (e.g., Lin et al., 1986; Mirowsky and Ross, 1992; Roberts et al., 1994). For example, Roberts and his colleagues (1994:41) argue that "deterioration of health and dependence on ADLs (activities of daily living) may restrict the ability of the old-old (those person age 85 or above) to control many aspects of their lives".

Studies have also demonstrated for a long time that social resources can be effective in fighting mental illness, including depressive symptoms. The role of social support in stress research dates back to Cassel (1976) and Cobb (1976). Since then social support is one of the most often studied resources in stress research (Ensel, 1991). Most researchers generally agree that it is an important resource that may reduce the level of depressive symptoms, and its impact on depressive symptoms can be either direct or indirect (Cohen and Wills, 1985; Mirowsky and Ross, 1989a; Bengston et al., 1990; Ensels and Lin, 1991b). This is especially true for the elderly (Fuller and Larson, 1980; Krause, 1987a, 1987b, 1987c; Ensels, 1991). However, many previous studies of the impact of social support on depressive symptoms produce inconsistent findings. This inconsistency may partially be due to a simplistic view of the role of social support (e.g., Murrell and Norris,



1984; Cohen and Wills, 1985; Jacobson, 1989). For example, studies of social support in stress research tend to argue which of two models is correct: a main effect model or an interaction effect model. This way of asking the research question is too simplistic. As Cohen and Wills (1985:353) note, "with the accumulated knowledge from a decade of work, there is no longer the need to ask which model is correct. Both models contribute to the understanding of the relationship between social support and stress". What we really need is to explore the conditions under which certain types of social support are more important to deal with certain kinds of stress outcomes and at what time (Jacobson, 1986).

In addition to the impact of social resources such as social support, we should also study the impact of other resources, such as economic and psychological resources, on mental health (Krause, 1987c; Ross and Mirowsky, 1989; Mirowsky and Ross, 1989a, 1992; Roberts et al., 1994). Murrell and Norris (1984: 446) emphasize:

Any single resource, such as social support, would simply be too limited to assess the group's potential psychological state.... all resources must necessarily be counted: older adults with good social support, but poor health and limited income would have serious difficulties with their environment.

For the elderly, especially the very old, "a key concern is to remain in charge of one's life" (Bould et al., 1989:3). For example, people age 50 or older who experience an undesirable health-related life event and who perceive no control over it are four times more depressed than are those who perceive they have control over it (Ensel, 1991). Thus, greater perceived control may significantly attenuate the adverse effects of strains, especially those related to physical health, on the psychological well-being among the old-old (Ensel, 1991; Roberts et al., 1994).

Studies also indicate that economic resources are very important. For example, financial strains tend to erode older people's sense of control, which in turn tends to increase their depressive symptoms (Pearlin and Johnson, 1977; Krause and Jay, 1991; Krause, Jay, and Liang, 1991). Thus, at least among people age 55 or older, persons with relatively good health, higher self-esteem, and more social support have a lower level of depressive symptoms to begin with, and they maintain this advantage regardless of their subsequent life event experiences (Murrell and Norris, 1984). In this sense, with an increase in age, good health, economic resources, sense of control, and social support become very important

(Goldberg et al., 1988; Bould et al., 1989; Mirowsky and Ross, 1989a).

Demographic Variables, Resources,  
and Depressive Symptoms

In a review of the research on the social patterns of depression in communities done during the 1960s, and in many surveys conducted since then, researchers have found some basic patterns of depression (Mirowsky and Ross, 1989a). These well-established patterns include that women, the unmarried, and those with lower socioeconomic status are more likely to have a high level of depressive symptoms than men, the married, and those with higher socioeconomic status. For example, aging is associated with becoming a widower or widow. While transition from marriage to singleness is a stressor in itself, depression is most common after the death of a spouse (Bachrach, 1975). This is especially true for younger widows and widowers (younger than age 65), and for those who perceive themselves in poor physical health (Zisook and Shuchter, 1991). Moreover, the unmarried are more likely to be exposed to economic hardship, a lower level of social support, and a lower sense of control. All these factors,

in turn, affect older people's depressive symptoms (Pearlin and Johnson, 1977; Kessler and Essex, 1982). Thus, the unmarried are more depressed because coping resources are less readily available to them than to the married (Kessler and Essex, 1982). This may be especially true for the elderly, as "the advantages of marriage are especially appreciated when life circumstances are most difficult, not when they are most benign" (Pearlin and Johnson, 1977:713).

Older women usually live longer than older men. Based on a study of three groups of older people (those age 65 to 74, those age 75 to 84, and those age 85 or older) in 1975 and again in 1984, older women generally experience a lower quality of life than older men in many indicators, including physical health, functional ability, perceived income adequacy, social contact, absence of psychological distress, and cognitive ability (Haug and Folmar, 1986). Moreover, older people usually have lower education than younger people. Studies clearly indicate that being a woman, being unmarried, having poor physical health and lower education are important stressors that affect depression among older people directly or indirectly through their impact on resources such as household income, social support, and sense of control. Thus,

marital status, gender, and education are controlled in the present study when the effect of perceived physical health on depressive symptoms is examined.

#### Diversity Among Groups of Older People

According to the life course perspective, diversity and heterogeneity may exist with regard to stressors, resources, and depressive symptoms among different groups of older people, especially among the pre-retired old (those age 55 to 64), the young old (those age 65 to 74), and the very old (those age 75 or older). Empirical studies demonstrate that the elderly population is greatly diversified (Kingson, Hirshorn, and Cornman, 1986). Although chronological aging does not necessarily imply poor health, the probability that one will develop a chronic illness increases with age (Bould et al., 1989). Persons age 85 or older are more than four times as likely as persons age 65 to 74 to need in-home or institutional long-term care services. Similarly, it is estimated that 6.7 percent of persons age 65 to 74, 15.7 percent of persons age 75 to 84, and 39.3 percent of those age 85 and older need help from another person to perform one or more daily activities (Kingson et al., 1986). When household

income of the elderly is broken down by age, the old-old generally have the lowest income (Kingson et al., 1986). The very old are also more likely to have a high level of depressive symptoms than other older age groups (Newmann, 1989; Mirowsky and Ross, 1989a, 1992; Kessler et al., 1992).

### Summary

At this point, relatively little is known about how the relationship between age-related stressors, resources, and depressive symptoms varies among the elderly. One of the major objectives of this study is to explore differences in predictors of depressive symptoms among three groups of older people: the pre-retired old (age 55 to 64), the young old (age 65 to 74), and the very old (age 75 or older). Specifically, three hypotheses often used to examine gender (Kessler, 1979b) and class differences (Langner and Michael, 1963; Murrell and Norris, 1991) in depression are examined for their applicability to the study of age differences in depression. These are differential exposure, differential vulnerability, and differential resource hypotheses.

According to stress theory, the impact of self-reported overall physical health may not be limited only to direct effects on psychological distress, but they may be indirect as well. Moreover, according to the life course perspective, people do not live in a vacuum, but in a complicated social and family context. Thus, in order to understand the depression process in general and the impact of physical health on depressive symptoms in particular, potential risk factors (stressors) and resources are included in the model. This approach also suggests that the life course of different groups of elderly people may share similarities as well as differences. Thus, some of the paths in the basic model may be different for the three groups of older Americans. More specifically, based upon prior research, stress theory, and the life course perspective, four groups of hypotheses and a general model predicting depressive symptoms will be presented in the following chapter.

## CHAPTER 4. THE MODEL AND THE HYPOTHESES

The basic theoretical model is shown in Figure 1 on page 14. This model argues that self-reported overall physical health has direct effects on household income, social support, sense of control, and depressive symptoms. It also predicts that physical health has indirect effects on depressive symptoms through household income, social support, and sense of control. Household income is expected to be affected directly by marital status, gender, and education. Social support is hypothesized to be affected directly by marital status, gender, physical health and household income, and indirectly by education. Sense of control is expected to be directly influenced by marital status, education, physical health, household income, and social support. Gender is not predicted to directly affect sense of control, but the effect is expected to be indirect through household income. Household income, social support, and sense of control are all predicted to have direct effects on depressive symptoms. This model implies that education does not have a direct impact on depression, but an indirect effect through household income and sense of control.



Based on the basic model in Figure 1, differential exposure, vulnerability, and resource hypotheses, and previous literature, four groups of hypotheses are proposed. Many of the hypotheses are tested within a structural equation model. Paths directly related to the study hypotheses are freed and retained in the model regardless of their significance. The relationships among stressors, resources, and depressive symptoms in the basic model and in the hypotheses will be examined through comparisons and contrasts among three older age groups. These hypotheses are as follows.

#### Hypothesis 1: Aging and Depressive Symptoms

- 1.1. With an increase in age, the elderly are more likely to experience a high level of depressive symptoms.
- 1.1A. The very old are more likely than the young old to experience a high level of depressive symptoms.
- 1.1B. The young old are more likely than the pre-retired old to experience a high level of depressive symptoms.
- 1.1C. The very old are more likely than the pre-retired old to experience a high level of depressive symptoms.

To test this group of hypotheses, a F-test in a one-way ANOVA will be used to compare mean scores on the CES-D (National Institute of Mental Health Center for

Epidemiological Studies Depression Scale). This will determine whether or not there are any significant differences in the mean scores among the three groups of older people. If the F-test is statistically significant, Scheffe's test will then be used to examine exactly which groups are significantly different.

#### Hypothesis 2: Exposure Hypotheses

- 2.1. With an increase in age, the elderly are more likely to have an increased exposure to poor physical health.
- 2.2. After controlling for other risk factors and resources (marital status, gender, education, household income, social support, and sense of control), the poorer the self-reported physical health, the higher the level of depressive symptoms among the elderly.

This general hypothesis has two links. First, with an increase in age, the elderly are more likely to be exposed to certain stressors, such as poor physical health. Second, this higher level of stress exposure is associated with a higher level of depressive symptoms. Support for this hypothesis will involve significant differences in self-reported physical health among the three groups of older people, and physical health in turn should predict depression. Specifically, to determine whether there is

differential exposure to self-reported overall physical health, the following hypotheses are needed:

- 2.1A. The very old are more likely than the young old to have poor self-reported physical health.
- 2.1B. The young old are more likely than the pre-retired old to have poor self-reported physical health.
- 2.1C. The very old are more likely than the pre-retired old to have poor self-reported physical health.
- 2.2A. After controlling for other risk factors and resources (marital status, gender, education, household income, social support, and sense of control), the poorer the self-reported physical health, the higher the level of depressive symptoms among the pre-retired old.
- 2.2B. After controlling for other risk factors and resources, the poorer the self-reported physical health, the higher the level of depressive symptoms among the young old.
- 2.2C. After controlling for other risk factors and resources, the poorer the self-reported physical health, the higher the level of depressive symptoms among the very old.

To test hypotheses 2.1A, 2.1B, and 2.1C, a F-test in a one-way ANOVA will be used to compare the three mean scores of self-reported overall physical health. This will determine if there are any significant differences in the mean scores among the three groups of older people. If the F-test is statistically significant, Scheffe's test will then be used to examine exactly which groups are statistically different. To test hypotheses 2.2A, 2.2B,

and 2.2C, the significance of the direct path of self-reported physical health to depressive symptoms in Figure 1 will be examined for elderly people as a whole, and then for each of the three groups separately.

### Hypothesis 3: Vulnerability Hypotheses

- 3.1A. There will be a stronger association between self-reported physical health and depressive symptoms for the very old than for the young old, after controlling for various risk factors and resources (marital status, gender, education, household income, social support, and sense of control).
- 3.1B. There will be a stronger association between self-reported physical health and depressive symptoms for the young old than for the pre-retired old, after controlling for various risk factors and resources.
- 3.1C. There will be a stronger association between self-reported physical health and depressive symptoms for the very old than for the pre-retired old, after controlling for various risk factors and resources.

Here significant differences in the effects of stressors across age groups will be examined. To test this group of hypotheses, the magnitude of the direct relationship from physical health to depressive symptoms for each of the three groups will be directly compared using stacked models in the LISREL 7 program.

#### Hypothesis 4: Resource Hypotheses

- 4.1. With an increase in age, the elderly are more likely to have fewer resources.
- 4.2. Having fewer resources is associated with a higher level of depressive symptoms among the elderly, after controlling for other variables in the model.

This hypothesis has two links. First, with an increase in age, the elderly are more likely to have fewer coping resources. Second, having fewer resources is associated with greater depressive symptoms. To gain support for this general hypothesis, we need significant differences in the three resources among the three groups of older people. Each of the resources in turn should be a significant predictor of depressive symptoms.

##### Household income

- 4.1A1. The young old are more likely than the pre-retired old to have low household income.
- 4.1A2. The very old are more likely than the young old to have low household income.
- 4.1A3. The very old are more likely than the pre-retired old to have low household income.
- 4.2A1. For the pre-retired old, having lower household income is associated with a higher level of depressive symptoms, after controlling for various stressors and resources (marital status, gender,

education, physical health, social support, and sense of control).

- 4.2A2. For the young old, having lower household income is associated with a higher level of depressive symptoms, after controlling for various stressors and resources.
- 4.2A3. For the very old, having lower household income is associated with a higher level of depressive symptoms, after controlling for various stressors and resources.

To test hypotheses 4.1A1, 4.1A2, and 4.1A3, a F-test in a one-way ANOVA will be used to compare mean scores of household income. This will determine if there are any significant differences in the mean scores among the three groups of older people. If the F-test is statistically significant, Scheffe's test will then be used to examine exactly which groups are statistically different. To test hypotheses 4.2A1, 4.2A2, and 4.2A3, the direct path of household income to depressive symptoms in Figure 1 for each of the three age groups will be examined for significance.

#### Social support

- 4.1B1. The young old are more likely than the pre-retired old to perceive a low level of social support.
- 4.1B2. The very old are more likely than the young old to perceive a low level of social support.
- 4.1B3. The very old are more likely than the pre-retired old to perceive a low level of social support.

- 4.2B1. For the pre-retired old, perceiving a lower level of social support is associated with a higher level of depressive symptoms, after controlling for various stressors and resources (marital status, gender, education, physical health, household income, and sense of control).
- 4.2B2. For the young old, perceiving a lower level of social support is associated with a higher level of depressive symptoms, after controlling for various stressors and resources.
- 4.2B3. For the very old, perceiving a lower level of social support is associated with a higher level of depressive symptoms, after controlling for various stressors and resources.

To test hypotheses 4.1B1, 4.1B2, and 4.1B3, a one-way ANOVA with Scheffe's test will be used to compare mean scores of perceived social support for the three groups of older people. To test hypotheses 4.2B1, 4.2B2, and 4.2B3, the direct path of social support to depressive symptoms in Figure 1 for each of the three age groups will be compared.

#### Sense of control

- 4.1C1. The young old are more likely than the pre-retired old to perceive a low sense of control.
- 4.1C2. The very old are more likely than the young old to perceive a low sense of control.
- 4.1C3. The very old are more likely than the pre-retired old to perceive a low sense of control.
- 4.2C1. For the pre-retired old, having a lower sense of control is associated with a higher level of

depressive symptoms, after controlling for various stressors and resources (marital status, gender, education, physical health, household income, and social support).

- 4.2C2. For the young old, having a lower sense of control is associated with a higher level of depressive symptoms, after controlling for various stressors and resources.
- 4.2C3. For the very old, having a lower sense of control is associated with a higher level of depressive symptoms, after controlling for various stressors and resources.

To test hypotheses 4.1C1, 4.1C2, and 4.1C3, a one-way ANOVA together with Scheffe's test will be used to compare mean scores on sense of control. To test hypotheses 4.2C1, 4.2C2, and 4.2C3, the direct path of sense of control to depressive symptoms in Figure 1 among each of the three groups will be examined.

The last three groups of hypotheses suggest several possible factors that may contribute to the explanation of different levels of depressive symptoms among the elderly. For example, when comparing the young old with the very old, the differential exposure hypothesis holds that the very old are more likely to be depressed because they are more likely to be exposed to stressors, such as having poor physical health, being widowed, or having lower education. The differential vulnerability hypothesis states that the very old are more vulnerable to stressors, or that stressors have greater impact on the very old. The



differential resource hypothesis holds that the very old have fewer coping resources, which is related to greater depression. Together these hypotheses are expected to explain differences in depressive symptoms among the three groups of elderly examined in this study.

## CHAPTER 5. METHOD

## Sample

Data for this study were collected as part of a large project on health issues conducted in the early 1990s at the Center for Family Research in Rural Mental Health, Iowa State University. Telephone interviews were conducted with 2034 respondents (age 18 or older) who were selected by using the last birthday method. The response rate was 76.3 percent. The interview took an average of twenty-two minutes to complete and included questions on a variety of topics including self-assessed health, health conditions, health limitations, health services, mental health, mental health services, mental health attitudes, alcohol use, stressful life events, social support, and basic household demographics.

A subsample of those respondents age 55 or older was used in this analysis. The total sample size using this criteria was 999. The age range was from 55 to 98. Over half of the respondents (55.7%) were married or lived with a partner at the time of interview and about two-thirds (67.5%) were female.

### Profile of Respondents

Respondent profiles are compared with the 1990 Census for residents in Iowa to determine the representativeness of the sample. Of the 2043 Iowa residents who completed the questionnaire, five percent were between 18 and 24 years old compared to 14 percent in the Census (see Figure 2), 16 percent were in the 25 to 34 age group compared with 21 percent in the Census, 37 percent were in the 35 to 54 age group compared with 32 percent in the Census, 16 percent were in the 55 to 64 age group compared with 12 percent in the Census, 15 percent were in the 65 to 74 age group compared with 11 percent in the Census, and 11 percent were in the 75 or older age group compared with 10 percent in the Census. Thus, age comparisons indicate that those under age 34 are slightly underrepresented in the survey. This does not create a problem in the present analyses, since the focus is on those age 55 or older. In fact, the age groups of interest in this study, especially the very old (age 75 or older), are quite closely represented when compared with figures from the 1990 Iowa Census (see Figure 2).

As shown in Figure 3, gender comparisons indicate that this survey somewhat overrepresents females (65%

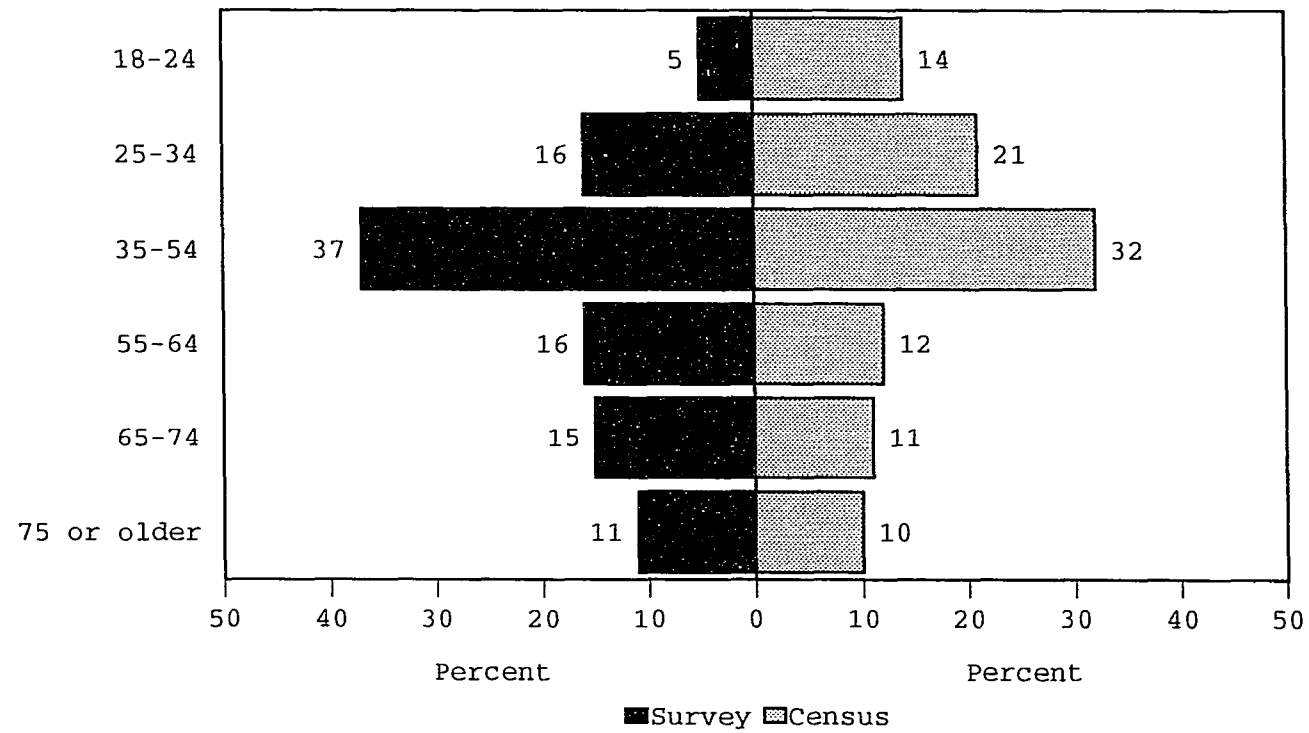


Figure 2. Age comparisons for people age 18 or older

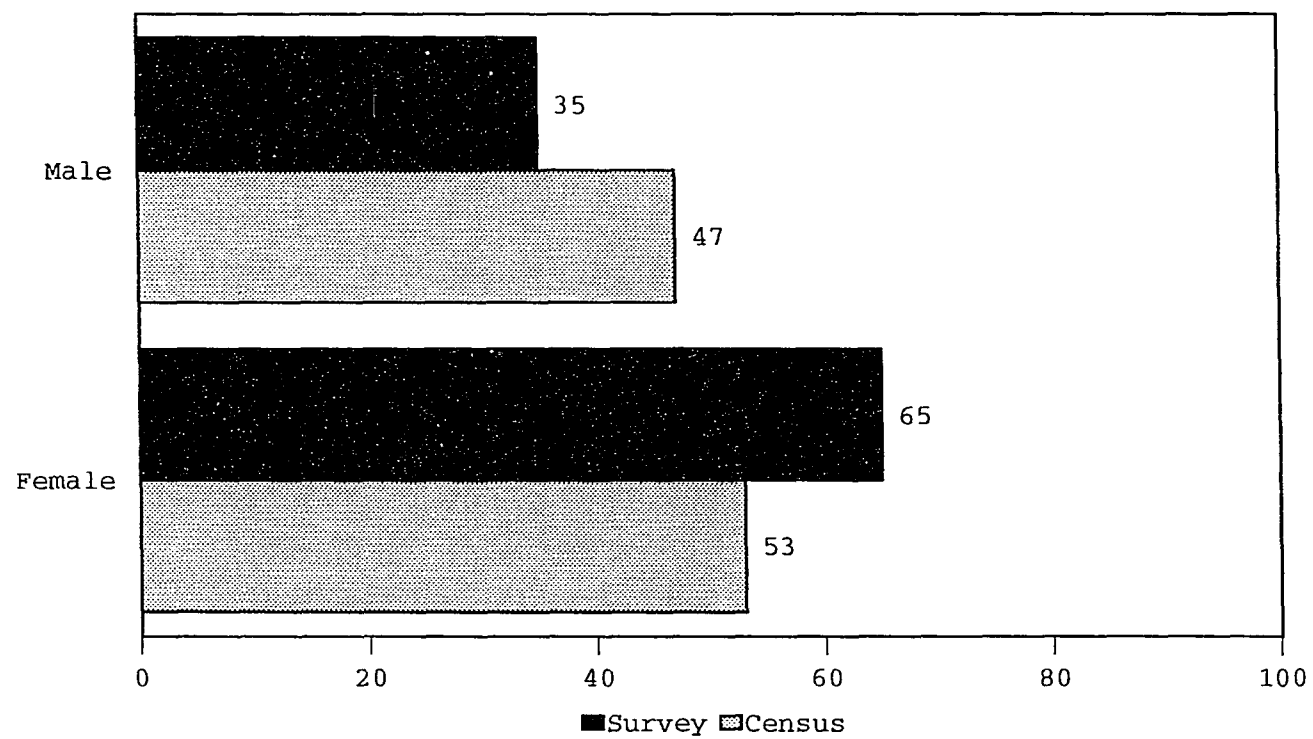


Figure 3. Gender comparisons for people age 18 or older

versus 53%). This is still true when the female composition of people age 55 or older is examined (68% versus 57%, as shown in Figure 4). However, marital status comparisons show virtually identical percentages (see Figure 5). For educational attainment (see Figure 6), respondents with less than a high school education (11%) are somewhat underrepresented when compared with Census data (19%). College graduates in the survey (15%) are slightly overrepresented compared to the Census data (11%). Other educational categories in the survey are quite similar to the Census data. The percentage of respondents with household income lower than 10,000 or higher than 55,000, are slightly underrepresented, while those earning between 20,000 and 54,999 are slightly overrepresented (see Figure 7). The percentage of respondents with household incomes between 10,000 and 19,999 in the survey (22%) are quite similar to the Census data (21%).

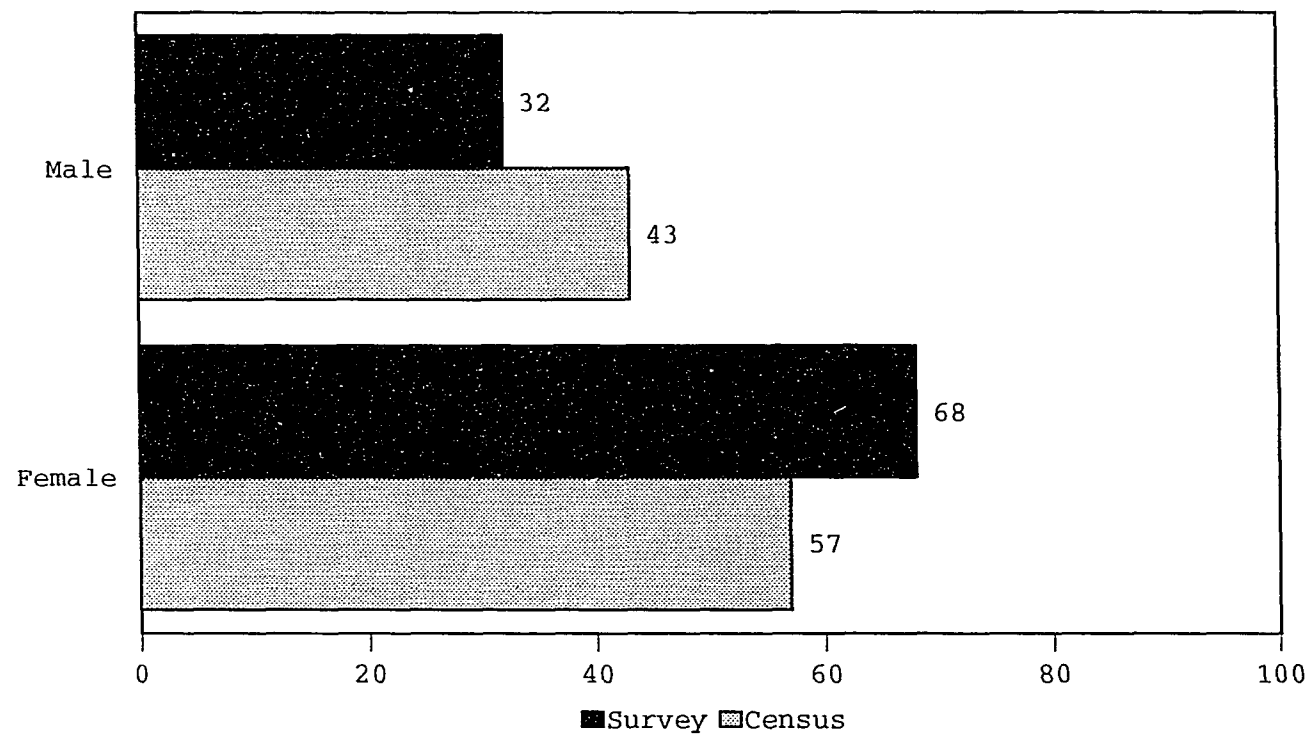


Figure 4. Gender comparisons for people age 55 or older

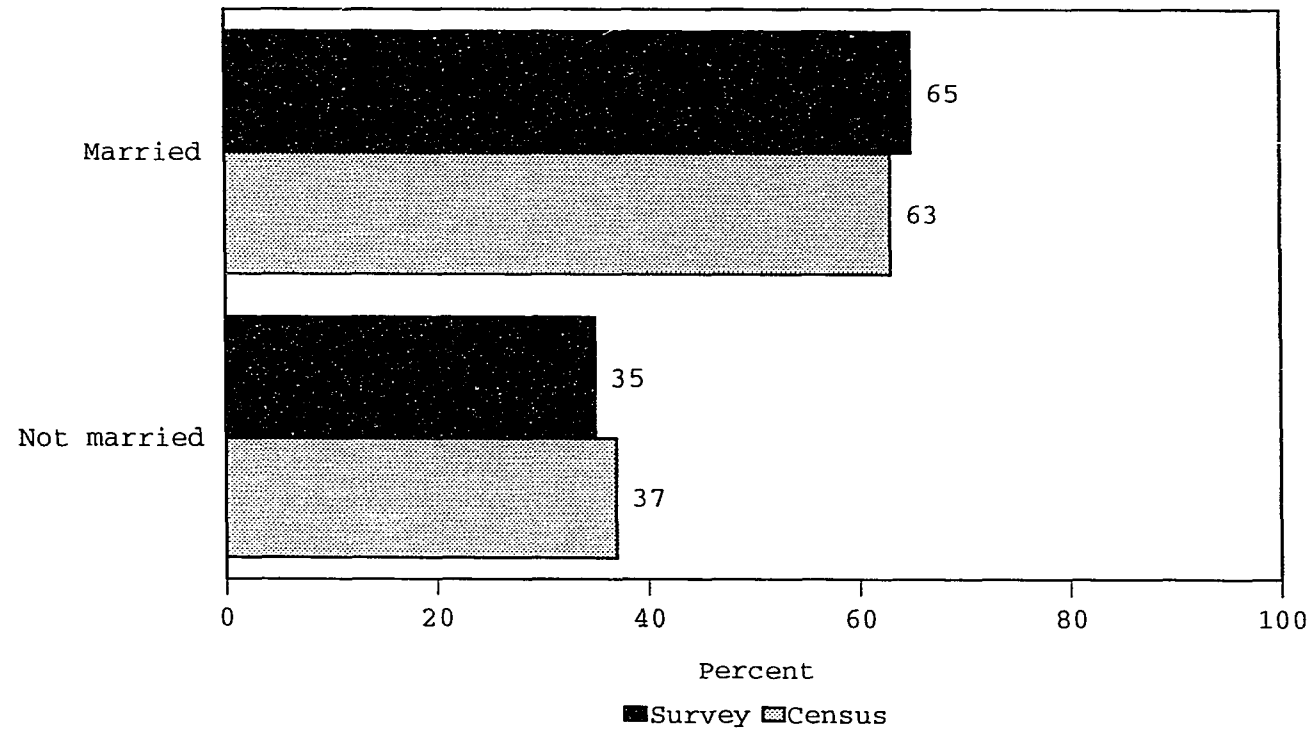


Figure 5. Marital status comparisons for people age 18 or older



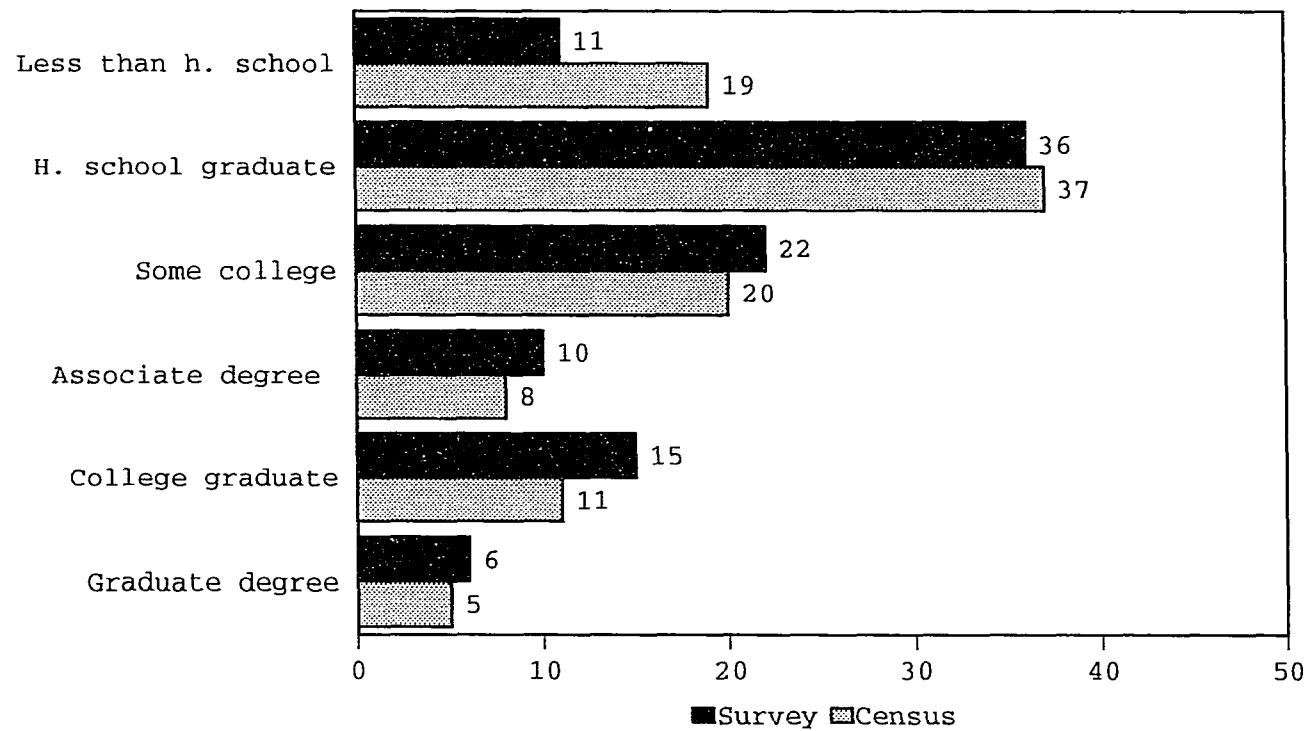


Figure 6. Education companions for people age 18 or older

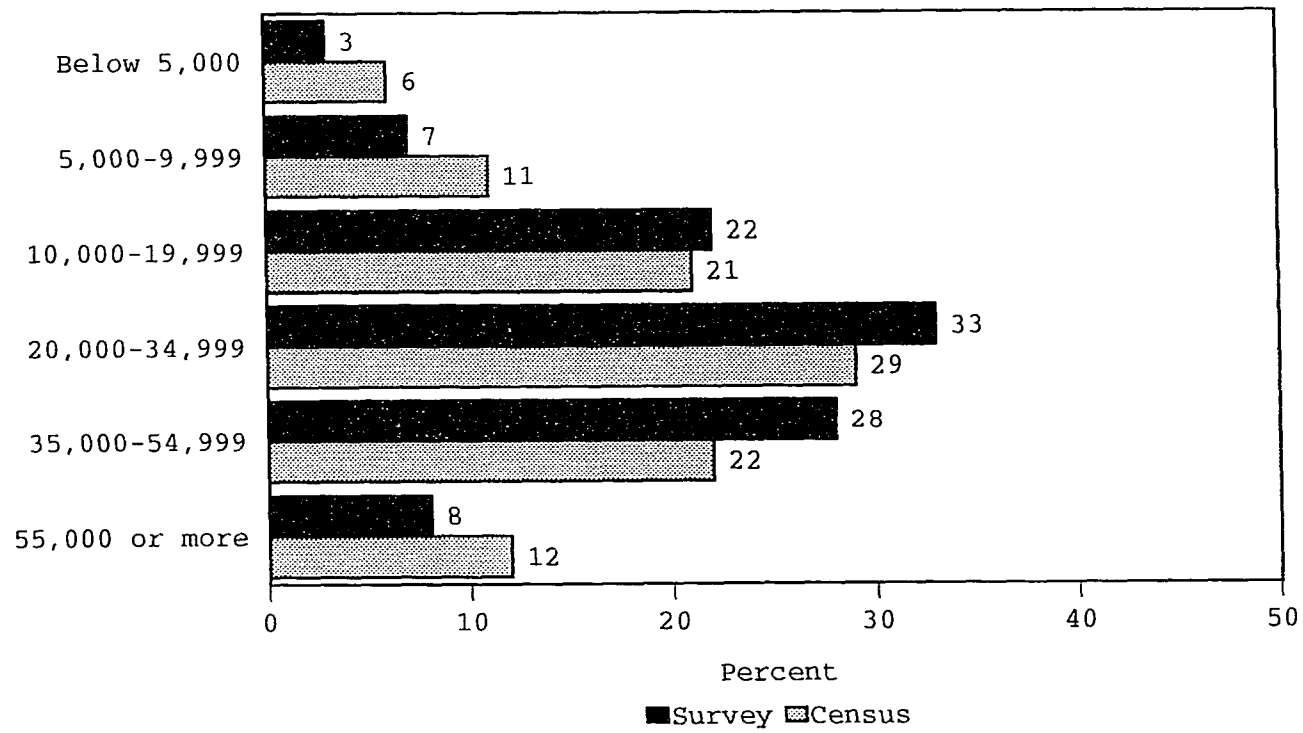


Figure 7. Income comparisons for people age 18 or older

## Measurement

### Depressive symptoms

There are many standard scales that have been established to measure depressive symptoms. The National Institute of Mental Health Center for Epidemiological Studies Depression Scale (CES-D) is one of the most popular instruments that measures the presence of depressive symptoms in community populations (Radloff, 1977; Mirowsky and Ross, 1989a). While the CES-D is not designed to discriminate among types of depression, nor to distinguish primary depressive disorders from secondary depression, it is intended to identify the presence and severity of depressive symptoms, and to discriminate between clinically depressed patients and others. This allows comparisons to be made across populations. The CES-D correlates highly with other depression rating scales, such as the Beck Depression Inventory (Radloff, 1977; Ross and Mirowsky, 1989), and with measures of anxiety, unhappiness, psycho-physiological distress, and low self-esteem (Ross and Mirowsky, 1989). In addition, this measure has been shown to work well in rural populations (Husaini, Neff, Harrington, Hughes, and Stone,

1980; Hoyt, 1988; Hoyt and Redmond, 1989). In this study, depressive symptoms were measured by the 20 items of the CES-D scale (see Table 1). Respondents indicated how many days in the past week they experienced each of the listed symptoms. The responses were then coded into four categories (1 = 0 days, 2 = 1 to 2 days, 3 = 3 to 4 days, 4 = 5 to 7 days) and added together to produce the final scale score.

#### Social support

Although research has documented that social support plays a very important role in the study of psychological distress, "there is less agreement concerning what constitutes support" (Jacobson, 1986:250; Ensel and Lin, 1991b). In the support literature, at least three different measures of social support exist, including embeddedness, received support, and perceived support (Ensel and Lin, 1991b). Of these three measures, perceived support is often found to have a stronger impact on depressive symptoms than availability of support or embeddedness (Cohen and Wills, 1985; Ross and Mirowsky, 1989a; Ensel and Lin, 1991b). Similarly, quality of social support is found to be more important than quantity of

Table 1: Study Measures

variables	Items description	Response Category
Health (health)	In general, would you say your physical health is:	1. poor; 2. fair; 3. good; 4. very good 5. excellent
Support (socsup)	The 2 items of social support are: 1. I have someone I can talk to. Do you... 2. I have someone I can turn to for support and understanding when things get rough. Do you..	1. strongly disagree; 2. disagree; 3. neutral; 4. agree; 5. strongly agree
Control (control)	The 8 component items are listed below: 1. I am responsible for my own success. * 2. I can do just about anything that I really set my mind to.* 3. The really good things that happen to me are mostly luck.** 4. Most of my problems are due to bad breaks.** 5. I have little control over the bad things that happen to me.** 6. I am responsible for my failure.* 7. My misfortunes are the results of mistakes that I have made.* 8. There is no sense planning a lot, if something good is going to happen, it will. **	1. strongly agree; 2. agree; 3. neutral; 4. disagree; 5. strongly disagree
Depression (cesdal20)	The 20 component items are listed below: Please tell me the number of days in the past week that: 1. you felt depressed. 2. your sleep was restless. 3. you enjoyed life.** 4. you had crying spells; 5. you felt sad. 6. you felt that people disliked you. 7. you felt bothered by things that usually do not bother you. 8. you felt fearful; 9. you felt you could not get going. 10. you felt lonely. 11. you had trouble keeping your mind on what you were doing 12. you felt that you could not shake off the blues even with help from your family or friends. 13. you felt like not eating. 14. you felt that everything you did was an effort. 15. you talked less than usual. 16. you felt you were as good as other people.*** 17. you felt hopeful about the future.*** 18. you felt people were unfriendly. 19. you were happy.*** 20. you thought your life had been a failure.	1. 0 days 2. 1-2 days 3. 3-4 days 4. 5-7 days

\*These items are recoded as: (1=2) (2=1) (3=-1) (4=-2).

\*\*These items are recoded as: (4=2) (3=1) (2=-1) (4=-2).

\*\*\*These items are reverse coded.

support (Bould et al., 1989). Thus, this study focuses only on perceived social support. Specifically, social support was measured by the following two questions: 1) I have someone I can really talk to, and 2) I have someone I can turn to for help and understanding when things get rough.

### Sense of control

Lack of sense of control in one's life may arise from the inability to achieve one's goals, from inadequate resources or opportunities, or from restricted alternatives (Kohn, 1976; Kohn and Schooler, 1982; Ross and Mirowsky, 1989). This condition is experienced by many people, especially the young and the old (Bould et al., 1989; Mirowsky and Ross, 1989a). Perceived control in this study was measured by a modified locus of control scale put forward by Ross and Mirowsky (1989). This index is comprised of eight statements, measuring global, stable, and personal attributions (Mirowsky and Ross, 1990). The final index was coded from low perceived control to high perceived control.

### Household income

Household income is treated as an economic resource in the family. It was recoded as follows: 1 = below 5,000, 2 = 5,000 to 9,999, 3 = 10,000 to 14,999, 4 = 15,000 to 19,999, 5 = 20,000 to 24,999, 6 = 25,000 to 34,999, 7 = 35,000 to 44,999, 8 = 45,000 to 54,999, 9 = 55,000 or more.

### Physical health

Three measures of physical health have been developed in the study of elderly populations: medical, functional or social, and subjective or psychological. Medical indicators of physical health usually measure "the presence or absence of symptoms, chronic illness, acute illnesses or impairments" (Liang and Whitelaw, 1990:38). A problem with these kinds of indicators is that many symptoms are related to both physical and mental health problems. Functional indicators are usually designed to measure "mobility, self-maintenance, role performance, and disability" (Liang and Whitelaw, 1990:39). Two of the most popular measures are the activities of daily living (ADL) scale and the instrumental activities of daily living

(IADL) scale. A major problem with these two scales is that they tend to produce highly skewed distributions when applied to random community samples. For example, Liang and Whitelaw (1990) notice that as many as 63 percent of older people report no IADL limits, and 89 percent report no ADL limits. Subjective indicators intend to measure older people's interpretation of their objective medical and functional health (Liang and Whitelaw, 1990:41; Krause and Jay, 1994). A single question that asks respondents to rate their overall (physical) health as excellent, good, fair, or poor is one of the most widely used measures. Although surveys indicate older respondents give disproportionately more positive health assessment (e.g. Idler, 1993), subjective interpretation of overall physical health generally reflects older people's physical health problems (55%), general physical functioning (33%), health comparisons (8%), and health behavior (3%). Such perception is a very important factor that may affect household income, social support, feeling of control, and depressive symptoms. Therefore, respondents were asked how they felt about their overall physical health. The response items were recoded so that a low score indicated poor health and a high score indicated good health (see Table 1).



### Sociodemographic variables

Four sociodemographic variables are examined in these analyses. Marital status was recoded as a dummy variable, with 1 as married or living with a partner and 0 as unmarried, including separated, divorced, widowed, or never married. Gender was measured as 0 and 1, with 1 representing male and 0 indicating female. Education was recoded as: 1 = less than high school, 2 = high school or G.E.D., 3 = some college, vocational, or technical training, 4 = two year college degree (associate degree), 5 = graduate of vocational or technical school, 6 = college graduate (BA/BS), 7 = some graduate work, 8 = advanced degree (MA, MS, Ph.D., MD, and JD). Age was measured in years according to the respondent's last birthday. In this study, those respondents age 55 or older were further divided into three age groups: the pre-retired old (age 55 to 64), the young old (age 65 to 74), and the very old (age 75 or older).

### Reliability

Internal consistency reliabilities (Cronbach's alpha) for the CES-D, social support and sense of control scales

were calculated for elderly people as a whole, and separately for each of the three groups of older people (see Table 2). There were high reliabilities for the CES-D among elderly people as a whole, and for each of the three groups. Reliabilities for the social support scale were also very similar for the elderly as a whole and for each of the three groups. Reliabilities for the sense of control scale, however, were slightly lower among the very old, but the differences involved were very small.

Table 2. Reliability of the Scales  
for the Three Groups of Elderly  
as a Whole and Separately

	The Pre-retired Old	The Young Old	The Very Old	All the Elderly
Depressive Symptoms	0.868	0.839	0.847	0.855
Social Support	0.857	0.858	0.882	0.864
Sense of Control	0.517	0.496	0.432	0.523

## CHAPTER 6. DATA ANALYSIS AND RESULTS

## Data Analysis

Correlations, frequencies, one-way ANOVAs with F-tests and Scheffe's tests, and LISREL 7 are used to analyze the data in this chapter. This involves two steps in data analysis. In the first step, preliminary data analyses are conducted, including univariate analysis, tests of gender differences for the basic model, and model fit for the basic model. Preliminary analyses demonstrate that it is very important to control for demographic variables when physical health, resources, and depressive symptoms are examined among the elderly. Moreover, it is very important to explore whether the basic model works in the same way for both elderly women and men before the model is estimated with the two groups together since many studies suggest strong potential gender differences in the level of depressive symptoms. For this purpose, the model in Figure 8, which is only slightly different from the basic model, is estimated separately for older men and older women. If this analysis does not demonstrate significant gender differences, the basic model will

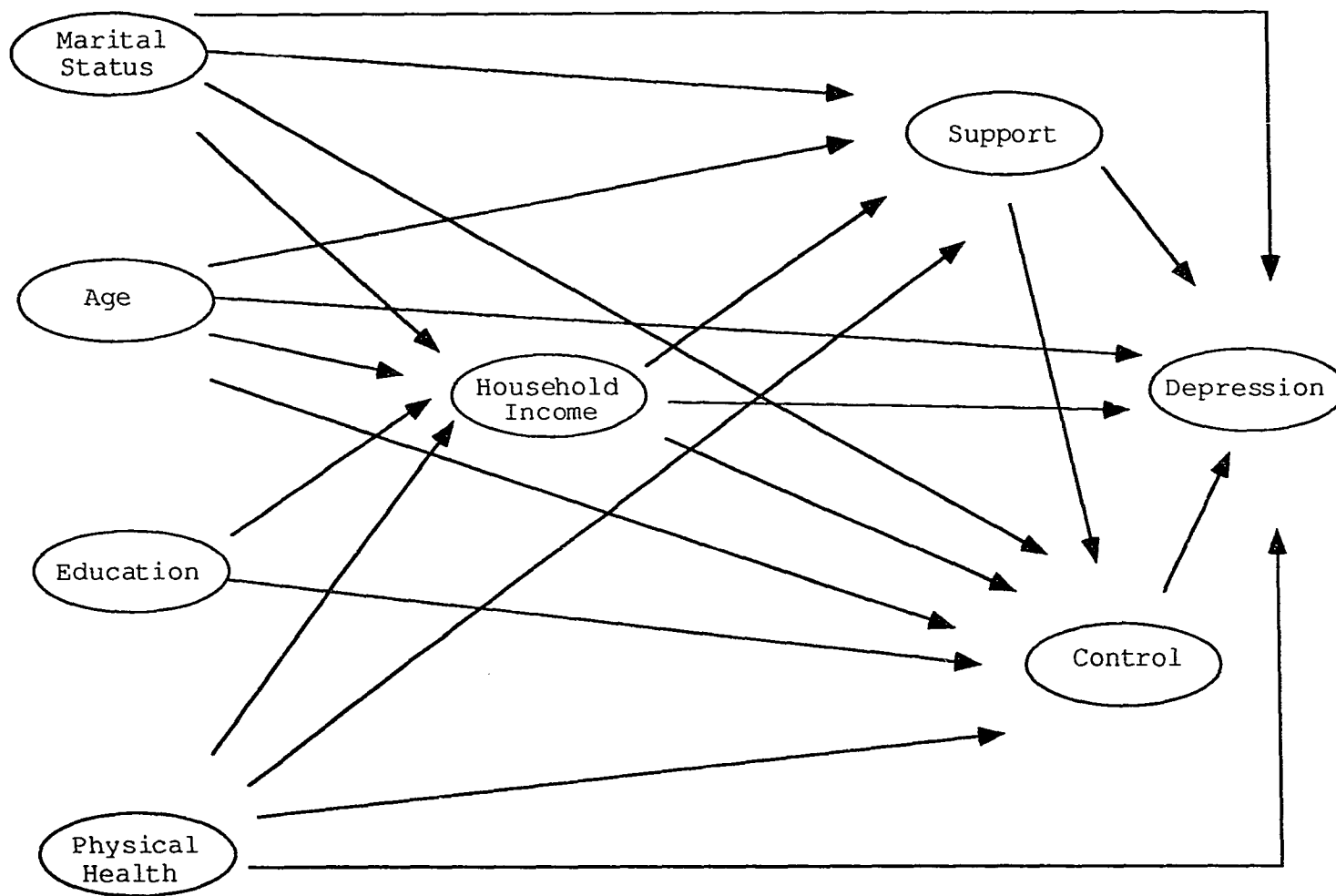


Figure 8. The Depression Process for Men and Women Age 55 or Above

be estimated for elderly men and women together. Furthermore, the model fit of the basic model in Figure 1 is examined before the model is used to test hypotheses for the elderly as a whole and separately.

The second step of the data analysis focuses on testing the four groups of hypotheses. In all these analyses, the basic model in Figure 1 is estimated for the elderly as a whole and then separately. The purpose of this approach is to see whether we gain any significant insights in our understanding of the relationship among stressors, resources, and depressive symptoms for the elderly in this study.

### Preliminary Analysis

#### Univariate analysis

Table 3 reports the frequencies and means of all the variables included in the basic model presented in Figure 1 for the elderly as one group as well as for each of the three groups. Comparison of columns 2, 3, and 4 with column 5 reveals that means (except for social support) and percentages of the elderly as a group hide significant

Table 3: Frequencies and Means for the Three Groups of Elderly  
as a Whole and Separately

	The Pre-retired old	The Young Old	The Very Old	All the Elderly	P (2-tails)
Age	36.3%	36.6%	26.1%	100%	(n=999)
Unmarried	31.6%	42.5%	65.1%	44.3%	(n=999)
Female	62.9%	68.5%	73.2%	67.5%	(n=999)
Poor Physical Health	19.4% (6%*)	23.1% (3.7%*)	35.1% (8.9%*)	24.8% (5.9%)	(n=997)
Physical Health	3.350** (1.066***)	3.288 (0.992)	2.931 (1.058)	3.198 (1.051)	.000 (n=996)
Education	3.165 (2.029)	2.789 (1.819)	2.604 (1.835)	2.855 (1.919)	.001 (n=998)
Household Income	5.484 (2.174)	4.640 (2.033)	3.964 (1.993)	4.799 (2.160)	.000 (n=810)
Social Support	8.071 (1.638)	8.042 (1.524)	8.073 (1.595)	8.061 (1.586)	.962 (n=999)
Sense of Control	6.272 (3.436)	5.592 (3.407)	3.851(3.393)	5.397 (3.535)	.000 (n=999)
Depressive Symptoms	26.503 (7.510)	25.907 (6.682)	28.075 (8.347)	26.653 (7.435)	.015 (n=697)

\*Percent in poor health.

\*\*Means are calculated by One-way ANOVA.

\*\*\*Standard deviation.

diversity among the three groups. This is because there are large differences in the percentages for the three groups of older people, and there are statistically significant differences in means (except for social support) between at least two of the three groups.

The very old are more likely to be female and unmarried, and to have lower education than the young old. Similarly, the young old are more likely to be female and unmarried, and to have lower education than the pre-retired old (see Table 3). For example, while less than one-third (31.6%) of the pre-retired old are unmarried, two out of five of the young old (42.5%) do not have a spouse, and almost two-thirds (65.1%) of the very old are unmarried. Thus, it is very important to control for gender, marital status, and education when the relationships among self-reported physical health, resources (household income, social support, and sense of control), and depressive symptoms are examined.

Table 4 reports the relationships of all the variables in Figure 1 with depressive symptoms for the elderly as a whole and for each of the three groups of older people. Except for gender of the very old, all the variables demonstrate consistent negative relationships with depressive symptoms. That is to say, no matter

Table 4. Correlations of Depression with Other Variables for the Three Groups of Elderly as a Whole and Separately+

	The Pre-retired Old	The Young Old	The Very Old	All the Elderly
Physical Health	-0.345**	-0.360**	-0.372**	-0.365**
Household Income	-0.186**	-0.169*	-0.089	-0.169**
Social Support	-0.082	-0.249**	-0.287**	-0.175**
Sense of Control	-0.181**	-0.227**	-0.348**	-0.257**
Marital Status	-0.193**	-0.159**	-0.200*	-0.202*
Gender	-0.127*	-0.134*	0.028	-0.093*
Education	-0.030	-0.113	-0.014	-0.058
Total N	241	222	129	592

+Correlations are calculated based on listwise deletion of cases.

\*Significant at the .05 level (2-tailed).

\*\*Significant at the .01 level (2-tailed)

whether the elderly are considered as a whole or as three separate groups, those with poor self-reported physical health, those with fewer economic, social, and psychological resources, those who are unmarried, or those with lower education are more likely to have a high level of depressive symptoms. This is another reason why sociodemographic variables, such as marital status, gender, and education, should be controlled when the relationships among self-reported overall physical health, resources, and depressive symptoms are examined.

The issue of gender is more complicated (see Table 4). If all the people age 55 or older are considered together, or if the pre-retired old or the young old are considered separately, women are significantly more depressed than men at the 0.05 level. However, if only the



very old are studied, men tend to be more depressed than women, although this relationship is not statistically significant at the 0.05 level. This relationship between gender and depressive symptoms for the very old is obscured due to the fact that the very old are only about one-fifth of the total elderly sample. This is one of the reasons why the very old are studied separately from the young old or the pre-retired old in the following multi-variate analysis.

The above results demonstrate that the relationships among the variables in the basic model are neither simple nor straight-forward among the three groups of older people. Thus, it is very important to compare and contrast multi-variate relationships for the three groups of older people, rather than simply treating people age 55 or older as one group.

#### Depressive symptoms among older men and women

Many studies indicate that women are more likely to have a higher level of depressive symptoms than men (e.g., Aneshensel et al., 1991). Thus, there is a good reason to believe that interaction effects might exist between age and gender in predicting levels of depressive symptoms.

Therefore before the basic model presented in Figure 1 is estimated with men and women together, we need to check whether there are any interaction effects.

In order to evaluate the above possibility, the model in Figure 8 is estimated separately for older men and older women. This model is almost the same as the basic model in Figure 1. The only difference is that gender is replaced by age and that age is proposed to be directly related to all the endogenous variables in the model (see Figure 8). If none of the paths in this model are found to be significantly different for older men and older women, there are no significant interaction effects. Thus, we can be confident that the basic model as shown in Figure 1 is adequate.

The model shown in Figure 8 is estimated with LISREL 7, which is a structural equation program devised by Joreskog and Sorbon (1988). This program permits the examination of relationships for each of the gender groups. The model fit for women and men is explored separately. The results of the model fit for the two groups are presented in Table 5. For older women, the total number of the valid cases in the model is 393. Chi-square with two degrees of freedom is 0.85. Based on chi-square, the overall model fits the data ( $\chi^2_{(2)}=0.85$ ,

P=0.654). Other statistics used to examine overall model fit indicate that the model also fits the data. The goodness of fit index for the model is 0.999 and adjusted goodness of fit is 0.990. Examination of individual parameters indicates that the model fits the data as well. All the paths are in the expected direction, although some of the paths are not statistically significant (Bollen, 1989).

Judging from the overall model fit and the individual paths, this model also fits the data for older men (see Table 5). For older men, chi-square is 1.98 ( $\chi^2_{(2)}=1.98$ , P=0.372), goodness of fit is 0.998, and adjusted goodness of fit is 0.956. Examination of the individual parameters in each of the two models indicates no surprises (Bollen, 1989).

Although the model fits the data for both older men and older women, the magnitude of the same path for each of the two groups is different in some cases. Moreover, some of the paths are statistically significant in one group, but not in the other group (compare Figure 9 and Figure 10). Thus, stacked models are used to compare each of the paths for the two groups to explore whether any of the paths is significantly different. To evaluate this, all the theoretically interesting paths are first allowed

Table 5: Maximum Likelihood Estimates and Estimates of Fit for Older Women and Older Men

	Older Women	Older Men
Household Income		
$\gamma_{11}$ (marital-income)	1.429*	1.565*
$\gamma_{12}$ (age-income)	-0.034*	-0.060*
$\gamma_{13}$ (education-income)	0.318*	0.288*
$\gamma_{14}$ (health-income)	0.237*	0.231*
$R^2$	0.295	0.361
Social Support		
$\gamma_{21}$ (marital-support)	0.098	0.373
$\gamma_{22}$ (age-support)	0.012	0.017
$\gamma_{24}$ (health-support)	0.208 *	0.196
$\beta_{21}$ (income-support)	0.070	0.091
$R^2$	0.034	0.051
Sense of Control		
$\gamma_{31}$ (marital-control)	-0.026	1.258*
$\gamma_{32}$ (age-control)	-0.091*	-0.055*
$\gamma_{33}$ (education-control)	0.358*	0.233*
$\gamma_{34}$ (health-control)	0.169	0.644*
$\beta_{31}$ (income-control)	0.053	-0.112
$\beta_{32}$ (support-control)	0.412*	0.332*
$R^2$	0.139	0.156
Depressive symptoms		
$\gamma_{41}$ (marital-depression)	-1.625*	-4.559*
$\gamma_{42}$ (age-depression)	-0.041	0.030
$\gamma_{44}$ (health-depression)	-1.956*	-2.849*
$\beta_{41}$ (income-depression)	0.002	0.163
$\beta_{42}$ (support-depression)	-0.580*	-0.060
	-0.402*	-0.237
$\beta_{43}$ (control-depression)		
$R^2$	0.160	0.299
Total $R^2$	0.412	0.568
Estimates of Fits		
$\chi^2_{(2)}$	0.85 (p=0.654)	1.98 (p=0.372)
Goodness of fit index	0.999	0.998
Adjusted goodness of fit index	0.990	0.956
Total sample	393	200

\*Significant at the .05 level.

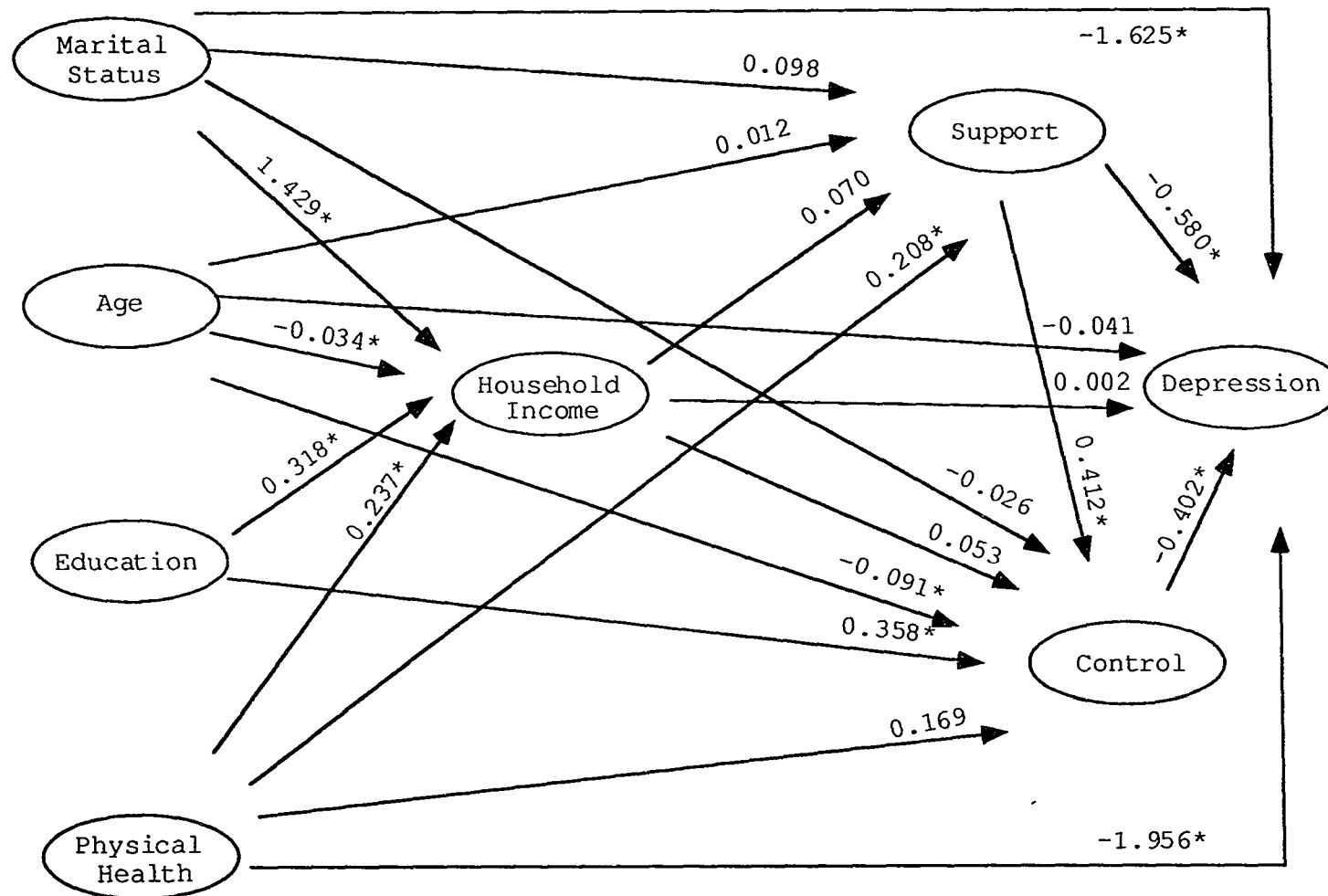


Figure 9. The Depression Process for Women Age 55 or Above  
(Maximum Likelihood Estimates)

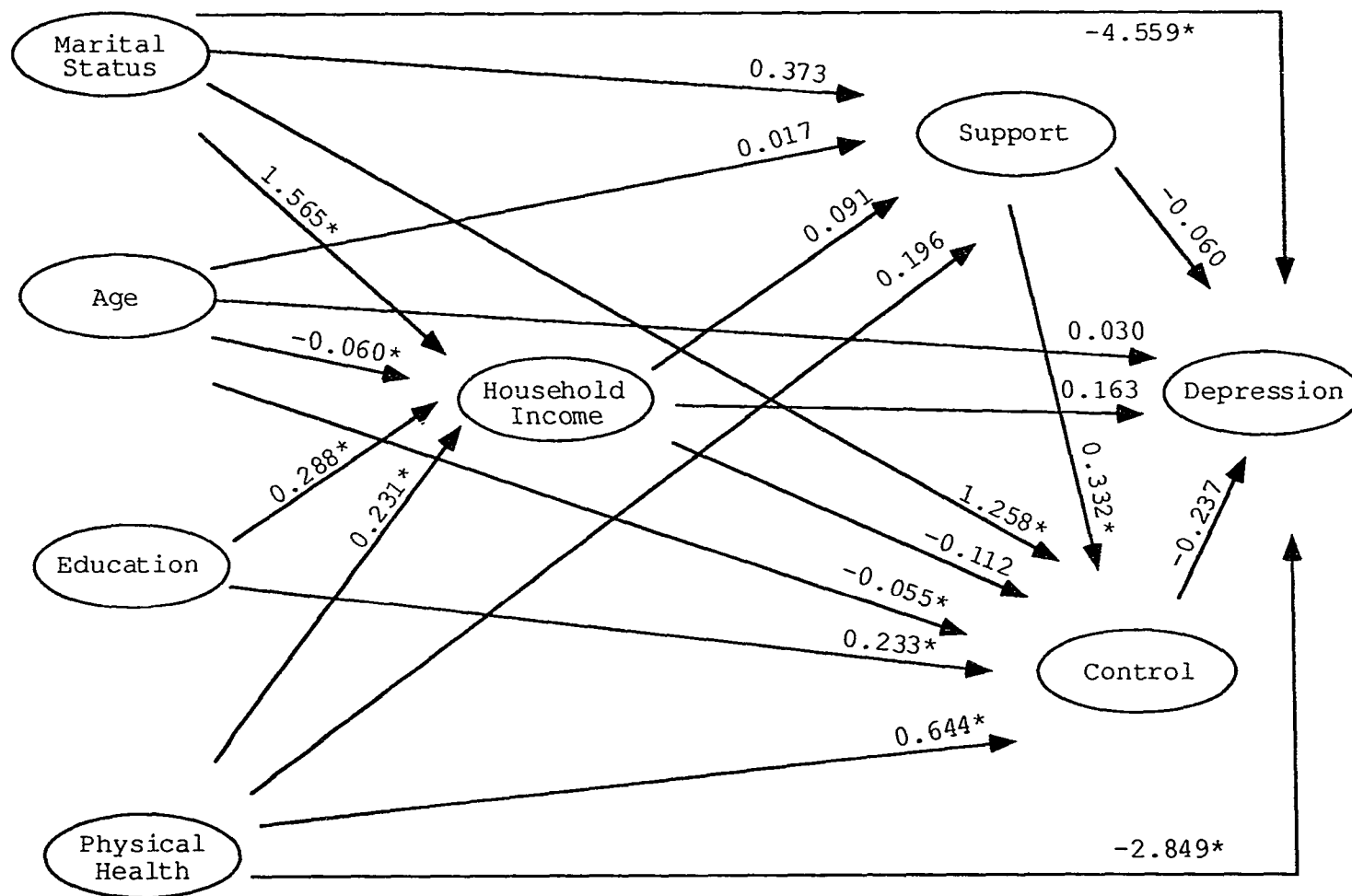


Figure 10. The Depression Process for Men Age 55 or Above  
(Maximum Likelihood Estimates)

to be free across the two groups. Then one path is constrained to be equal for the two groups at one time. This step is continued for all the paths that are freed in the model. The resulting change in chi-square between various estimates is then used to determine whether that path differs significantly for the two groups.

The results of such stacked model procedures for the two groups are shown in Table 6. From the table we can see that none of the changes in the magnitude of chi-square with one degree of freedom is larger than 3.84. This indicates that none of the paths is significantly different for the two groups. Thus there are no significant gender differences in the model. In the following analysis, the model is estimated with men and women age 55 or older together.

#### Model fit

The model shown in Figure 1 is estimated with LISREL 7. Since many studies suggest a potential gender difference in depressive symptoms, this study has explored such a possibility. Results (which are not reported in this study) indicate that the basic model works in the same way for elderly women and men, so the model fit for

Table 6: Chi-square and Change in Chi-square  
for Comparisons of Paths of Interest  
for Older Women and Older Men

	$\chi^2_{(df)}$	$\Delta\chi^2_{(1)}$
Interesting Model	1.72 <sub>(4)</sub>	
Household Income		
$\gamma_{11}$ (marital-income)	4.75 <sub>(5)</sub>	3.03
$\gamma_{12}$ (age-income)	1.80 <sub>(5)</sub>	0.08
$\gamma_{13}$ (education-income)	1.84 <sub>(5)</sub>	0.12
$\gamma_{14}$ (health-income)	2.09 <sub>(5)</sub>	0.37
Social Support		
$\gamma_{21}$ (marital-support)	2.67 <sub>(5)</sub>	0.95
$\gamma_{22}$ (age-support)	3.69 <sub>(5)</sub>	1.97
$\gamma_{24}$ (health-support)	2.17 <sub>(5)</sub>	0.45
$\beta_{21}$ (income-support)	2.99 <sub>(5)</sub>	1.27
Sense of Control		
$\gamma_{31}$ (marital-control)	4.97 <sub>(5)</sub>	3.25
$\gamma_{32}$ (age-control)	1.88 <sub>(5)</sub>	0.16
$\gamma_{33}$ (education-control)	1.74 <sub>(5)</sub>	0.02
$\gamma_{34}$ (health-control)	3.58 <sub>(5)</sub>	1.86
$\beta_{31}$ (income-control)	1.82 <sub>(5)</sub>	0.10
$\beta_{32}$ (support-control)	2.08 <sub>(5)</sub>	0.36
Depression		
$\gamma_{41}$ (marital-depression)	3.45 <sub>(5)</sub>	1.73
$\gamma_{42}$ (age-depression)	3.55 <sub>(5)</sub>	1.83
$\gamma_{44}$ (health-depression)	3.08 <sub>(5)</sub>	1.36
$\beta_{41}$ (income-depression)	2.60 <sub>(5)</sub>	0.88
$\beta_{42}$ (support-depression)	1.75 <sub>(5)</sub>	0.03
$\beta_{43}$ (control-depression)	2.61 <sub>(5)</sub>	0.89

\*Significant at the .05 level, indicating the change in chi-square with one degree of freedom is greater than 3.84.

$\Delta\chi^2$ : changes in chi-square.

df: degree of freedom.



all the elderly as a whole and each of the three groups are examined.

The results of all the model fits are presented in Table 7. For the elderly as a whole, the total number of valid cases in the model is 593. Chi-square with three degrees of freedom is 1.76. Based on this chi-square, the overall model fits the data ( $\chi^2_{(3)}=1.76$ ,  $P=0.625$ ). Other statistics used to examine overall model fit also indicate that the model fits the data. The goodness of fit index for the model is 0.999 and adjusted goodness of fit is 0.991. Examination of individual parameters also indicates that the model fits the data. All the paths are in the expected direction, although some of the paths are not statistically significant.

Judging from the overall model fit and the individual paths, the basic model also fits the data for the pre-retired old, the young old, and the very old (see Table 7). For the pre-retired old, chi-square is 1.88 ( $\chi^2_{(3)}=1.88$ ,  $P=0.598$ ), goodness of fit is 0.998, and adjusted goodness of fit is 0.977. For the young old, chi-square is 0.78 ( $\chi^2_{(3)}=0.78$ ,  $P=0.854$ ), goodness of fit is 0.999, and adjusted goodness of fit is 0.989. For the very old, chi-square is 0.49 ( $\chi^2_{(3)}=0.49$ ,  $P=0.920$ ), goodness of fit is 0.999, and adjusted goodness of fit is 0.988.

Table 7: Maximum Likelihood Estimates and Estimates of Fit for the Three Groups of Elderly as a Whole and Separately

	55-64	65-74	75 or Older	55 or Older (All)
Household Income				
$\gamma_{11}$ (marital-income)	1.778*	1.424*	1.168*	1.626*
$\gamma_{12}$ (gender-income)	0.569*	0.124	0.355	0.351*
$\gamma_{13}$ (education-income)	0.265*	0.386*	0.237*	0.319*
$\gamma_{14}$ (health-income)	0.330*	0.129	0.292*	0.281*
$R^2$	0.348	0.306	0.198	0.325
Social Support				
$\gamma_{21}$ (marital-support)	0.449	0.043	0.125	0.134
$\gamma_{22}$ (gender-support)	-0.371	0.156	-0.343	-0.148
$\gamma_{24}$ (health-support)	0.240 *	0.178	0.210	0.193*
$\beta_{21}$ (income-support)	0.027	0.107	0.092	0.063
$R^2$	0.056	0.040	0.045	0.033
Sense of Control				
$\gamma_{31}$ (marital-control)	0.755	-0.115	0.456	0.548
$\gamma_{33}$ (education-control)	0.269*	0.388*	0.145	0.286*
$\gamma_{34}$ (health-control)	0.679*	0.126	0.124	0.409*
$\beta_{31}$ (income-control)	-0.036	0.003	0.078	0.071
$\beta_{32}$ (support-control)	0.337*	0.523*	0.343	0.361*
$R^2$	0.136	0.108	0.053	0.107
Depression				
$\gamma_{41}$ (marital-depression)	-2.146*	-0.804	-4.998*	-2.184*
$\gamma_{42}$ (gender-depression)	-1.013	-1.129	3.263*	-0.319
$\gamma_{44}$ (health-depression)	-2.160*	-2.142*	-2.831*	-2.217*
$\beta_{41}$ (income-depression)	-0.048	-0.141	0.403	0.051
$\beta_{42}$ (support-depression)	0.017	-0.647*	-0.981*	-0.419*
$\beta_{43}$ (control-depression)	-0.164	-0.298*	-0.766*	-0.354*
$R^2$	0.158	0.206	0.334	0.197
Total $R^2$	0.348	0.418	0.377	0.438
Estimates of Fits				
$\chi^2_{(3)}$	1.88 (p=0.598)	0.78 (p=0.854)	0.49 (p=0.920)	1.76 (p=0.625)
Goodness of fit index	0.998	0.999	0.999	0.999
Adjusted goodness of fit index	0.977	0.989	0.988	0.991
Total sample	241	222	129	593

\*Significant at the .05 level.

Examination of the individual parameters in each of the three models indicates that they are in the expected direction.

Although the model fits the data for each of the three groups of older people, this model is the best at explaining depressive symptoms of the very old (see Table 7). The total variance in depression that is explained by all the variables in the model is 0.334 for the very old, 0.206 for the young old, and 0.158 for the pre-retired old. For the pre-retired old and the young old, this model explains more of the variance in household income than the variance in depression (34.8 percent of variance in household income for the pre-retired old, 30.6 percent for the young old, and 18.9 percent for the very old). This model explains very little variance in social support for the three groups or sense of control for the very old. For all three age groups, the total variance of social support explained by marital status, gender, education, physical health, and household income is only around five percent. The total variance in control explained is 13.6 percent for the pre-retired, 10.8 percent for the young old, and 5.3 percent for the very old.

## Hypothesis Testing

### Aging and depressive symptoms

The first general hypothesis in this study argues that with an increase in age, the elderly are more likely to have a high level of depressive symptoms. A one-way analysis of variance (ANOVA) is used to examine mean scores of depressive symptoms for the pre-retired old, the young old, and the very old (see Table 8). The F-test ( $F=4.229$ ,  $P = 0.015$ ) indicates that at least one of the means for the three groups is significantly different from the others at the 0.05 level. Scheffe's test further shows that the very old are significantly more depressed than the young old. The young old and the pre-retired old, however, are not significantly different in their level of depressive symptoms. Thus, this study provides partial support for this general hypothesis.

### Exposure hypotheses

The general exposure hypothesis has two parts (distribution of stress and direct impact of stress). The

Table 8: Aging and Depression for the Elderly

	The Pre-retired old	The Young old	The Very Old	All the Elderly	P (2-tails)
F-test in ANOVA					
Depressive Symptoms	26.503** (7.510***)	25.907 (6.682)	28.075 (8.347)	26.653 (7.435)	.0149 (n=697)
Scheffe's test					
The Pre-retired old					
The Young old					
The Very Old		*			

\*Based on the Scheffe's test, the very old are significantly more depressed than the young old at the 0.05 level.

\*\*Means are calculated by one-way ANOVA.

\*\*\*Standard deviation.

first part states that with an increase in age, the elderly are more likely to have an increased exposure to poor physical health. The second part argues that after controlling for other risk factors and resources (marital status, gender, education, household income, social support, and sense of control), the poorer the self-reported physical health, the higher the level of depressive symptoms among the elderly.

#### Distribution of physical health

The analysis in this study provides evidence to partially support the first part of the general exposure hypothesis (see Table 9). On average, about one-quarter (24.8%) of older people do not report they have good

Table 9: Exposure Hypotheses

	The Pre-retired old	The Young old	The Very Old	All the Elderly	P (2-tails)
Poor Physical Health	19.4% (6%****)	23.1% (3.7%*)	35.1% (8.9%*)	24.8% (5.9%)	(n=997)
F-test in ANOVA					
Physical Health	3.350** (1.066***)	3.288 (0.992)	2.931 (1.058)	3.198 (1.051)	.000 (n=996)
Scheffe's test					
The Pre-retired old					
The Young old					
The Very Old	*	*			
Maximum Likelihood Estimates					
$\gamma_{44}$ (health - depression)	-2.160*****	-2.142*****	-2.831*****	-2.217*****	

\*Based on the Scheffe's test, the very old are significantly more depressed than the young old at the 0.05 level.

\*\*Means are calculated by one-way ANOVA.

\*\*\*Standard deviation.

\*\*\*\*Percent in poor health.

\*\*\*\*\*Significant at the .05 level.

overall physical health. Comparison of the three groups indicates that older adults are less likely to perceive that they have good physical health. Almost one-fifth (19.4%) of the pre-retired old and slightly more of the young old (23.1%) think that their physical health is not good. This number increases dramatically for the very old. More than one-third (35.1%) of the very old report that their physical health is not good, and almost 8.9 percent perceive that their health is poor. Scheffe's test indicates that the very old are significantly more likely than the pre-retired old and the young old to perceive that they do not have good physical health. Although the young old are more likely than the pre-retired old to perceive their health as not good, this relationship is not statistically significant.

#### Direct impact of physical health on depression

A one-way ANOVA is used to explore the second part of the general exposure hypothesis for the elderly as a whole. This analysis indicates that those elderly who perceive their physical health as fair or poor are more likely to feel depressed than those who think their health is good. The mean CES-D score is 36.914 for those with

poor physical health, 29.730 for those with fair health, 26.179 for those with good health, 24.746 for those with very good health, and 24.205 for those with excellent health. Scheffe's test indicates that those who consider their physical health as poor are significantly more depressed at the 0.05 level than those who think their health is fair, good, very good, or excellent. Those who consider their health as fair are significantly more depressed than those who regard their health as good, very good, or excellent. There are no statistically significant difference in depression score among those who believe their physical health is good, very good, or excellent.

These preliminary results are confirmed by the multivariate analysis with LISREL 7. Thus, this study strongly supports the second part of the general hypothesis that poor physical health is related to a high level of depressive symptoms after controlling for marital status, gender, education, household income, social support, and sense of control (see Table 9). This is true regardless of whether older people are considered as one group or as three separate groups. The maximum likelihood coefficient of gamma 44 ( $\gamma_{44} = -2.217$ ) for the elderly as a whole is significant at the 0.05 level. This suggests that poorer self-reported physical health is significantly related to



a higher level of depressive symptoms among the elderly after controlling for the other variables in the model (see Figure 11). The same pattern holds true for the pre-retired old, the young old, and the very old when the three groups are examined separately (see Table 9, Figures 12, 13, and 14). For the pre-retired old, the maximum likelihood coefficient of gamma 44 ( $\gamma_{44}=-2.160$ ) is significant at the 0.05 level. For the young old, the maximum likelihood coefficient of gamma 44 ( $\gamma_{44}=-2.142$ ) is significant at the 0.05 level. For the very old, the maximum likelihood coefficient of gamma 44 ( $\gamma_{44}=-2.831$ ) is also significant at the 0.05 level.

#### Vulnerability hypotheses

The differential vulnerability hypothesis predicts that after controlling for sociodemographic (marital status, gender, and education) and resource variables (household income, social support, and social control), poor self-reported physical health has a greater impact on depressive symptoms of the very old than on that of the younger age group. In the context of Figure 1, this suggests that the magnitude of the direct path from physical health to depressive symptoms is greater for the

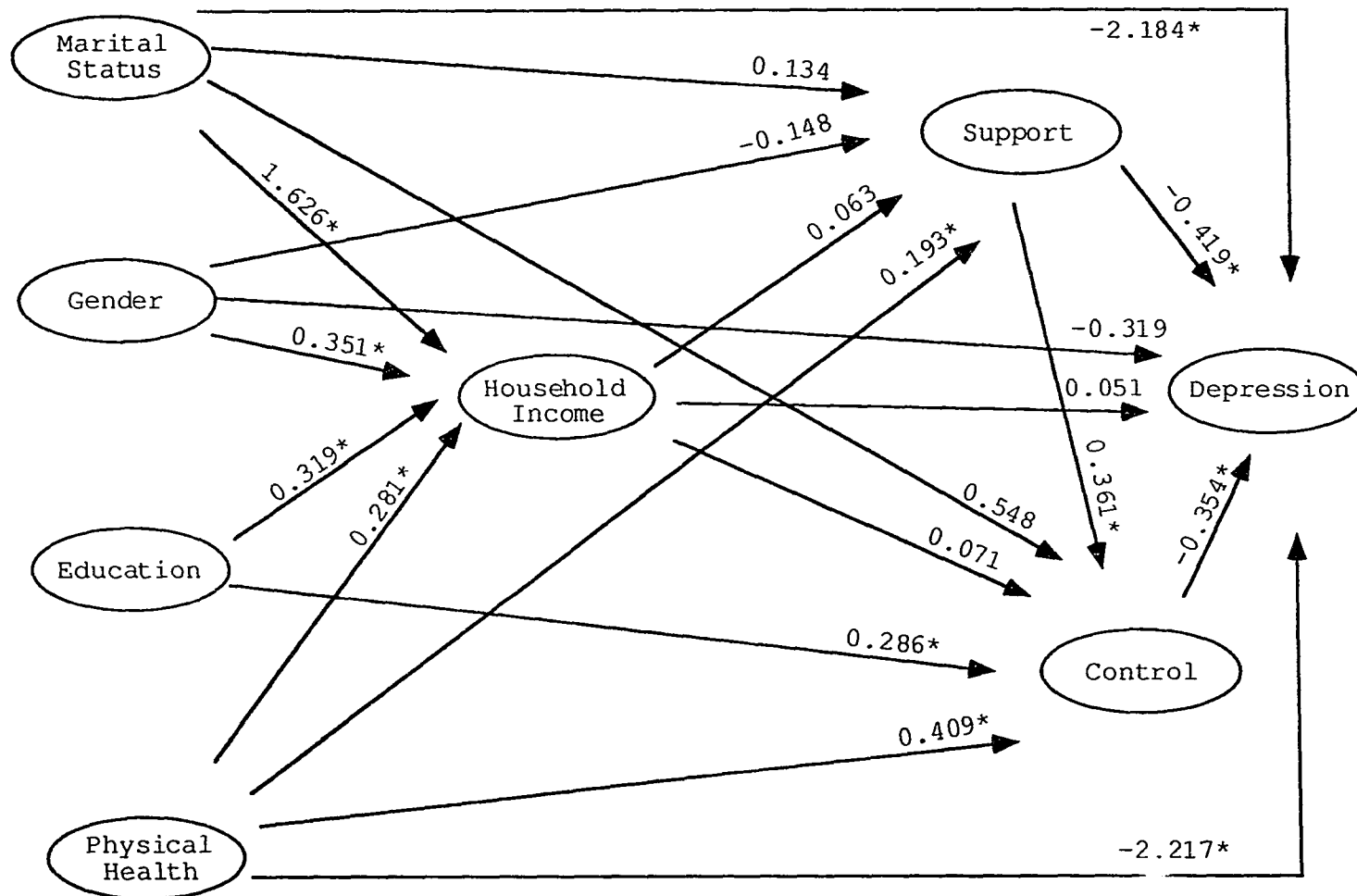


Figure 11. The Depression Process for People Age 55 or Above  
(Maximum Likelihood Estimates)

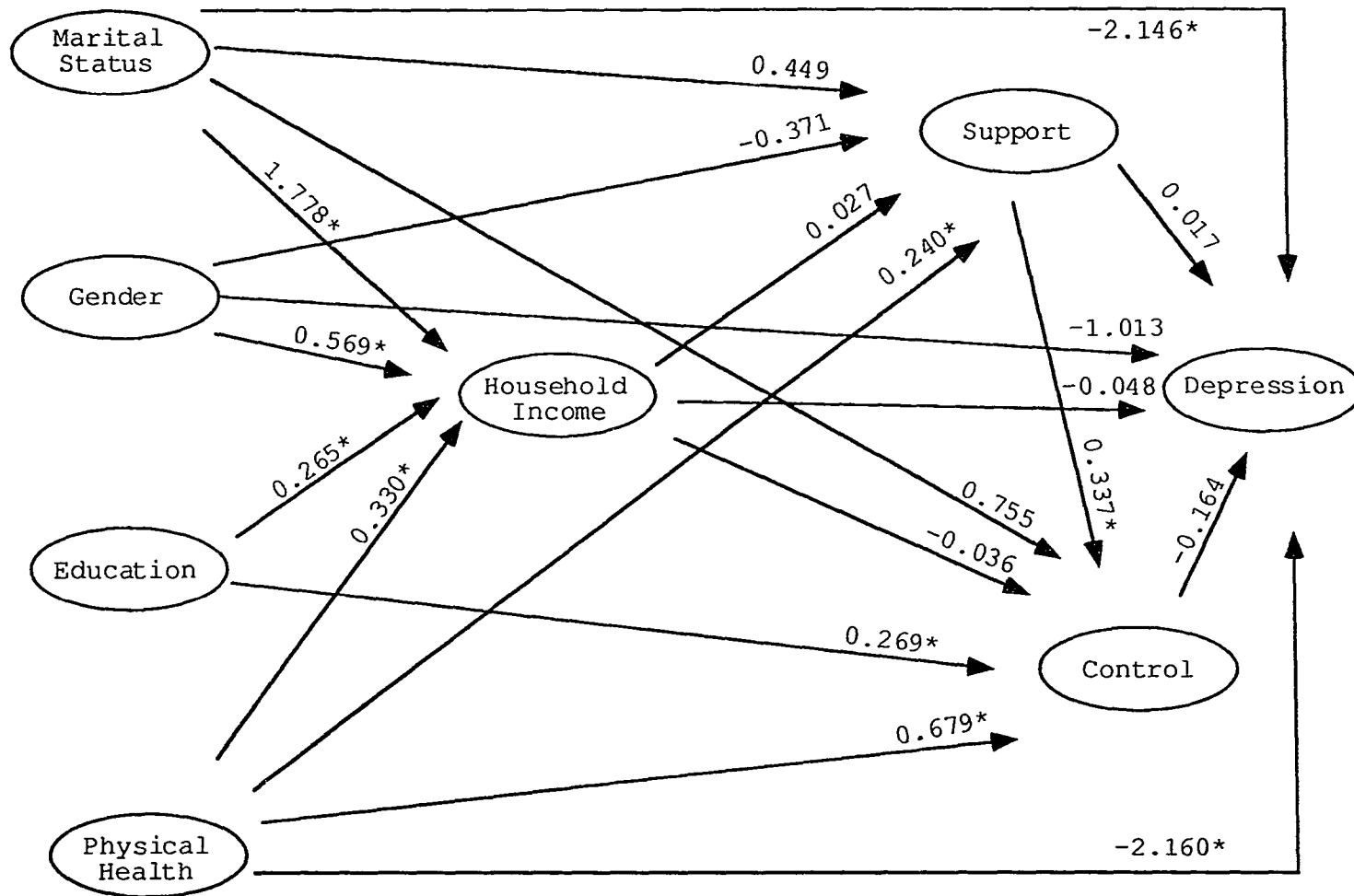


Figure 12. The Depression Process for The Pre-retired Old  
(Maximum Likelihood Estimates)

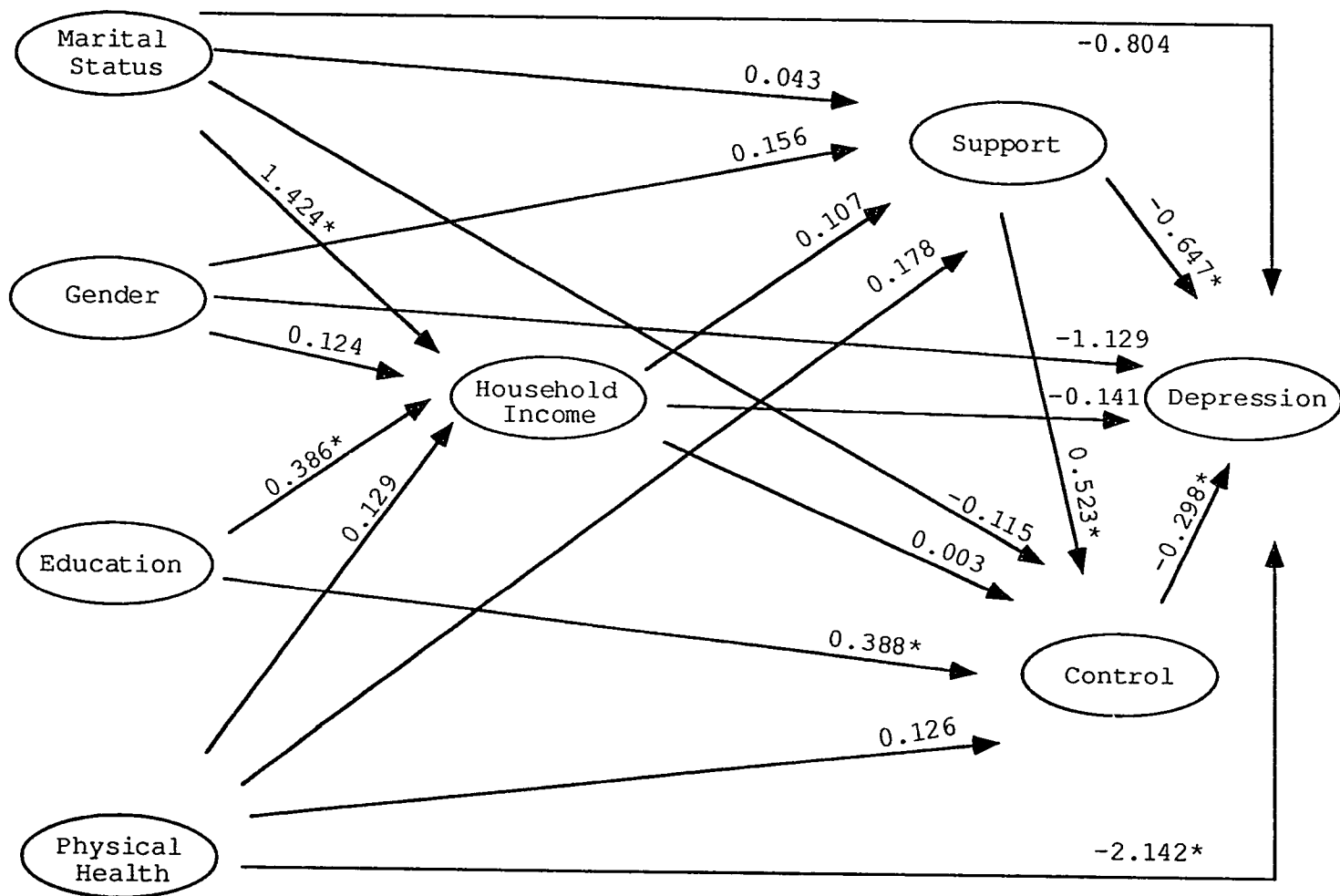


Figure 13. The Depression Process for the Young Old  
(Maximum Likelihood Estimates)

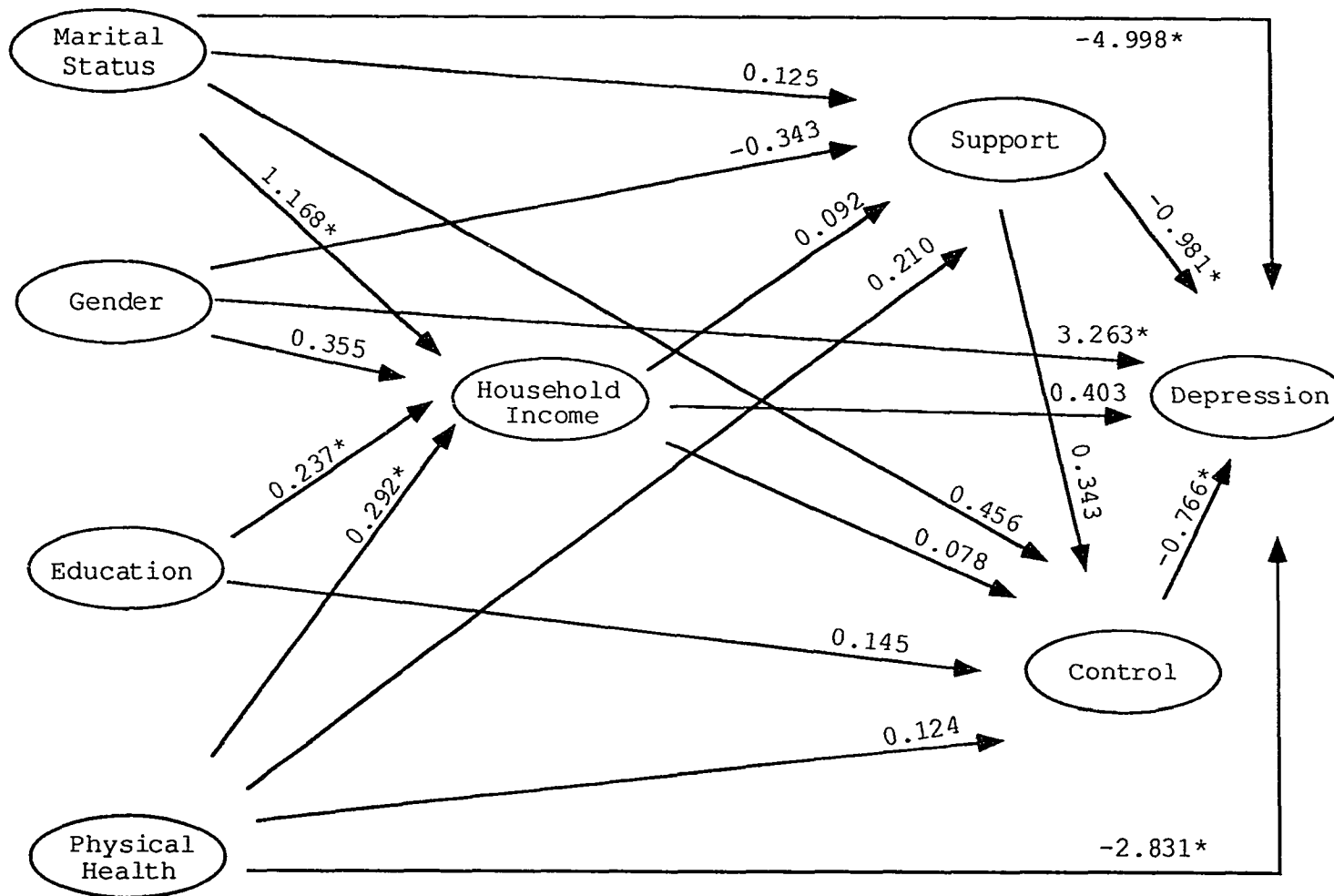


Figure 14. The Depression Process for the Very Old  
(Maximum Likelihood Estimates)

very old than for the young old, greater for the young old than for the pre-retired old, and greater for the very old than for the pre-retired old.

The direct path from self-reported overall physical health to depressive symptoms in the basic model is not the same magnitude for the three groups of older people. In order to check whether the differences in this path are statistically significant, stacked models within the LISREL 7 program are used to directly compare this path between the pre-retired old and the young old, between the young old and the very old, and between the pre-retired old and the very old. In the first estimation, the relationship between the two constructs is allowed to be free across groups. In subsequent estimations, the parameter estimates are constrained to be equal for two groups at one time. The resulting change in chi-square between estimates is then used to determine whether the parameter values differ significantly for the three groups of older people.

Results based on analyses directly testing this differential vulnerability hypothesis are presented in Table 10. The change in chi-square with one degree of freedom is 0.00 ( $\Delta\chi^2_{(1)}=0.00<3.84$ ) when this direct path ( $\gamma_{44}$ ) is constrained to be equal for the pre-retired old

Table 10: Chi-square and Change in Chi-square  
for Comparisons of Paths of Interest  
among the Three Groups

	G1 with G2		G2 with G3		G1 with G3	
	$\chi^2_{(df)}$	$\Delta\chi^2_{(1)}$	$\chi^2_{(df)}$	$\Delta\chi^2_{(1)}$	$\chi^2_{(df)}$	$\Delta\chi^2_{(1)}$
Interesting Model	2.67 <sub>(6)</sub>		1.27 <sub>(6)</sub>		2.38 <sub>(6)</sub>	
<b>Health</b>						
$\gamma_{14}$ (health-income)	4.44 <sub>(7)</sub>	1.77	2.10 <sub>(7)</sub>	0.83	2.42 <sub>(7)</sub>	0.04
$\gamma_{24}$ (health-support)	2.82 <sub>(7)</sub>	0.18	1.30 <sub>(7)</sub>	0.03	2.41 <sub>(7)</sub>	0.03
$\gamma_{34}$ (health-control)	5.99 <sub>(7)</sub>	3.32	1.27 <sub>(7)</sub>	0.00	5.20 <sub>(7)</sub>	2.82
$\gamma_{44}$ (health-depression)	2.67 <sub>(7)</sub>	0.00	2.14 <sub>(7)</sub>	0.87	3.19 <sub>(7)</sub>	0.81
<b>Household income</b>						
$\beta_{41}$ (income-depression)	2.74 <sub>(7)</sub>	0.07	2.84 <sub>(7)</sub>	1.57	3.43 <sub>(7)</sub>	1.05
<b>Support</b>						
$\beta_{42}$ (support-depression)	5.40 <sub>(7)</sub>	2.73	1.71 <sub>(7)</sub>	0.44	6.10 <sub>(7)</sub>	3.72
<b>Control</b>						
$\beta_{43}$ (control-depression)	3.18 <sub>(7)</sub>	0.51	5.15 <sub>(7)</sub>	3.88*	8.38 <sub>(7)</sub>	6.00*
<b>Gender</b>						
$\gamma_{42}$ (gender-depression)	2.68 <sub>(7)</sub>	0.01	7.07 <sub>(7)</sub>	5.80*	7.68 <sub>(7)</sub>	5.30*

\*Significant at .05 level, indicating the change in chi-square with one degree of freedom is greater than 3.84.

$\Delta\chi^2$ : changes in chi-square.

df: degree of freedom.

G1: Group 1, those age 55 to 64. (the pre-retired old)

G2: Group 2, those age 65 to 74. (the young old)

G3: Group 3, those age 75 or older. (the very old)

G1 with G2: comparison of Group 1 with Group 2.

and the young old. When this path ( $\gamma_{44}$ ) is constrained to be equal for the young old and the very old, the change in chi-square is only 0.87 ( $\Delta\chi^2_{(1)} = 0.87 < 3.84$ ). The change in chi-square is 0.81 ( $\Delta\chi^2_{(1)} = 0.81 < 3.84$ ) when this path ( $\gamma_{44}$ ) is constrained to be equal for the pre-retired old and the very old. Thus, poor physical health does not have a significantly greater negative impact on the level of depressive symptoms among the very old than among the young old, nor among the pre-retired old, after controlling for sociodemographic and resource variables. If the elderly report that they do not have good physical health, they are more likely to have a higher level of depressive symptoms while controlling for marital status, gender, education, household income, perceived social support, and sense of control. Thus, there is little evidence to support the specific vulnerability hypothesis, at least when self-reported physical health is considered as the major stressor.

#### Resource hypotheses

The general resource hypothesis has two parts (distribution of resources and direct impact of resources). The first part holds that with an increase in



age, the elderly are more likely to have fewer resources. The second part argues that after controlling for other variables in the model, having fewer resources is related to a higher level of depressive symptoms among the elderly. The above hypotheses are applied to three resource variables (household income, social support, and sense of control).

#### Distribution of resources

The analyses testing this hypothesis are shown in Table 11. Although the mean score of sense of control for the whole group is 5.397, there is a statistically significant difference between the means for each of the three groups. The mean is 6.272 for the pre-retired, 5.592 for the young old, and 3.851 for the very old. A one-way ANOVA F-test ( $F=39.905$ ,  $P=0.000$ ) indicates that at least one of the mean scores is significantly different than the others. Based on Scheffe's test, the very old are significantly less in control of their lives than the young old or than the pre-retired old, and the young old are significantly less in control of their lives than the pre-retired old. Thus, sense of control decreases dramatically with an increase in age.

Table 11: Resource Hypotheses

	The Pre-retired old	The Young old	The Very Old	All the Elderly	P (2-tails)
F-test in ANOVA					
Sense of Control	6.272** (3.436***)	5.592 (3.407)	3.851(3.393)	5.397 (3.535)	.000 (n=999)
Household Income	5.484 (2.174)	4.640 (2.033)	3.964 (1.993)	4.799 (2.160)	.000 (n=810)
Social Support	8.071 (1.638)	8.042 (1.524)	8.073 (1.595)	8.061 (1.586)	.962 (n=999)
Scheffe's test for sense of control					
The Pre-retired old					
The Young old	*				
The Very Old	*	*			
Scheffe's test for household income					
The Pre-retired old					
The Young old	*				
The Very Old	*	*			
Scheffe's test for social support					
The Pre-retired old					
The Young old					
The Very Old					
Maximum Likelihood Estimates					
$\beta_{41}$ (income-depression)	-0.048	-0.141	0.403	0.051	
$\beta_{42}$ (support-depression)	0.017	-0.647****	-0.981****	-0.419****	
$\beta_{43}$ (control-depression)	-0.164	-0.298****	-0.766****	-0.354****	

\*Based on the Scheffe's test, the very old are significantly more depressed than the young old at the 0.05 level.

\*\*Means are calculated by one-way ANOVA.

\*\*\*Standard deviation.

\*\*\*\*Significant at the .05 level.

This is also true for household income. Household income of the very old (3.964) is significantly lower than that of the young old (4.640) and than that of the pre-retired old (5.484). Household income of the young old is also significantly lower than that of the pre-retired old.

The mean scores of social support for the three groups, however, are not significantly different at the 0.05 level ( $F=0.039$ ,  $P=0.962$ ). The mean is 8.071 for the pre-retired old, 8.042 for the young old, and 8.073 for the very old. Thus, perceived social support is fairly constant for the three groups of elderly. This finding is consistent with some previous literature. Both Thoits (1984) and Morgan, Schuster, and Butler (1991) find that social support does not vary much with age among the adult population.

This study provides partial support for this general hypothesis. Household income and sense of control as resources decrease dramatically from the pre-retired old to the very old. The very old have significantly lower household income and sense of control than the young old and the pre-retired old, and the young old have significantly lower household income and sense of control than the pre-retired old. This study, however, fails to

support the argument that social support among the elderly decreases with an increase in age.

#### Direct impact of resource on depression

After controlling for other variables in the model, the direct path from household income to depressive symptoms ( $\beta_{41}$ ) is not statistically significant in any of the three groups of elderly (see Table 11), nor is it significantly different for the three groups (see Table 10). This indicates that household income does not have a statistically significant direct impact on depressive symptoms among any of the three groups after controlling for marital status, gender, education, self-reported physical health, social support, and sense of control.

The direct path from social support to depression, however, is quite different for the three groups (see Table 11). For the pre-retired old, more social support tends to be related to a higher level of depressive symptoms, although this relationship is very weak ( $\beta_{42}=0.017$ ) and not statistically significant. Thus, social support is not significantly associated with the well-being of the pre-retired old. Things are somewhat different for the young old. For the young old, this

relationship is negative and significant at the 0.05 level ( $\beta_{42} = -0.647$ ), indicating that a lower level of perceived social support are significantly related to a higher level of depressive symptoms. Contrary to findings for the pre-retired old, higher social support is beneficial for the well-being of the young old. However, the difference in the magnitude of this path for the pre-retired old and the young old is not statistically significant at the 0.05 level ( $\Delta\chi^2_{(1)} = 2.73 < 3.84$ , see Table 10).

The association between social support and depressive symptoms is even stronger for the very old ( $\beta_{42} = -0.981$ , see Table 11). This indicates that social support is more important for the very old than for the young old. However, the difference in the magnitude of this path for the young old and the very old is not statistically significant at the 0.05 level ( $\Delta\chi^2_{(1)} = 0.44$ , see Table 10). The situation is different if the path between the pre-retired old and the very old is compared. The difference in the magnitude of this path almost reaches statistical significance at the 0.05 level ( $\Delta\chi^2_{(1)} = 3.72$ ). Thus, there is a trend for social support to become more important for the young old and the very old than for the pre-retired old, after controlling for stressors and other resources in the model. This trend is very gradual,

as there is no significant difference in this relationship between any two of the adjacent age groups. However, when the pre-retired old and the very old are compared, this trend almost becomes statistically significant. Thus, with an increase in age, social support has a greater impact on depressive symptoms after controlling for marital status, gender, education, self-reported physical health, household income, and sense of control.

The magnitude of the relationship between sense of control and depressive symptoms is quite different for the three groups of older people (see Table 11). There is a trend for sense of control to become more important in fighting depressive symptoms of the very old when compared to the young old, and for the mental health of the young old when compared to the pre-retired old. For the pre-retired old, the direct path of control to depressive symptoms ( $\beta_{43}=-0.164$ ) is not statistically significant at the 0.05 level. This indicates that sense of control does not have a statistically significant effect on the level of depressive symptoms, although more control tends to be related to a lower level of depressive symptoms. The picture is somewhat different for the young old. For this group, the direct path of control to depressive symptoms ( $\beta_{43}=-0.298$ ) is statistically significant at the 0.05

level. Thus, sense of control has a stronger impact on the level of depressive symptoms among the young old than among the pre-retired old. However, this difference in magnitude is not statistically significant at the 0.05 level ( $\Delta\chi^2_{(1)} = 0.51$ , see Table 10).

Sense of control is much more important for the well-being of the very old. The direct path of control to depressive symptoms is largest for the very old ( $\beta_{43} = -0.766$ , significant at the 0.05 level, see Table 11). Moreover, this path is significantly larger at the 0.05 level compared with that of the young old ( $\Delta\chi^2_{(1)} = 5.15 - 1.27 = 3.88 > 3.84$ ), and even larger at the 0.05 level than that of the pre-retired old ( $\Delta\chi^2_{(1)} = 8.38 - 2.38 = 6.00$ , see Table 10). Thus, compared to the pre-retired old, sense of control is more important for the young old, and even more important for the very old.

### Summary

This study provides partial support for this general hypothesis. Distribution of resources (household income, social support, and sense of control) and the relationship among resources and depressive symptoms are very complicated among the elderly. In each case, they depend

on the subgroup of the elderly and the kind of resources under consideration.

### Other Results

#### Indirect impact of physical health on depression

##### Direct impact of physical health on resources

Although the direction of the direct paths from physical health to household income ( $\gamma_{14}$ ), to social support ( $\gamma_{24}$ ), and to sense of control ( $\gamma_{34}$ ) is the same for the three groups of older people, the magnitudes of these paths are different. Stacked models are used to check whether these differences in magnitude are statistically significant. Results indicate that there is no significantly different direct impact of physical health on the resource variables in the basic model for the three groups of older people while controlling for marital status, gender, and education (see Table 10). When the direct path of physical health to household income is constrained to be equal between the pre-retired old and the young old, the change in chi-square with one degree of freedom is 1.77 ( $\Delta\chi^2_{(1)} = 1.77 < 3.84$ ). For the same path,



the change in chi-square between the young old and the very old is 0.83 ( $\Delta\chi^2_{(1)} = 0.83 < 3.84$ ), and 0.04 ( $\Delta\chi^2_{(1)} = 0.04 < 3.84$ ) between the pre-retired old and the very old. The same patterns hold true for the direct path of physical health to social support, and the direct path of physical health to sense of control. Thus, for all three groups of elderly, poorer self-reported physical health tends to be related to lower household income, lower perceived social support, and lower sense of control. In summary, poor physical health tends to erode coping resources of elderly.

#### Indirect impact of physical health on depression

The total indirect impact of self-reported physical health through household income, social support, and sense of control on depressive symptoms is negative for all three groups (-0.135 for the pre-retired old, -0.210 for the young old, and -0.289 for the very old), although none of these effects are significant at the 0.05 level (see Table 12). This pattern is persistent for the three groups of older people and for the three resources. It is consistent with the prediction that poor self-reported physical health tends to erode coping resources of

elderly. Thus, it can be argued that there is a double danger for the elderly who report poor physical health.

Poor self-reported physical health has not only a significant direct negative impact but also an indirect negative impact on the level of depressive symptoms among the elderly. These results are consistent with previous research. Gatz and Hurwicz (1990) find that poorer self-reported physical health is associated with a higher level of depressive symptoms.

Table 12: Direct, Indirect and Total Effects of Physical Health on Depressive Symptoms for the Three Groups of Elderly

	Direct Effect (Standard Error)	Indirect Effect (Standard Error)	Total Effect (Standard Error)
Group 1: 55 to 64	-2.160 (0.449)*	-0.135 (0.146)	-2.295 (0.418)*
Group 2: 65 to 74	-2.142 (0.433)*	-0.210 (0.127)	-2.352 (0.441)*
Group 3: 75 or up	-2.831 (0.607)*	-0.289 (0.289)	-3.120 (0.639)*

\*Significant at the .05 level.

#### Gender and depressive symptoms

The relationship between gender and depressive symptoms among older people is a finding in this study that deserves mentioning. For those under 75 years of age, women tend to have a higher level of depressive symptoms after controlling for marital status, education, and the resource variables in the model (see 742 in Table 7).

Thus, pre-retired old and young old women tend to have a higher level of depressive symptoms than pre-retired old and young old men. However, stacked models which compare the pre-retired old with the young old indicate that the magnitude in the direct path from gender to depressive symptoms for these two groups of older people is not significantly different ( $\Delta\chi^2_{(1)} = 0.01$ , see Table 10).

For those age 75 or older, men are significantly more depressed than women after controlling for marital status, education, household income, social support, and control. For the very old, the direct path from gender to depressive symptoms is 3.263, significant at the 0.05 level (see Table 7). Thus, very old men have a statistically higher level of depressive symptoms than very old women. Comparison of this path ( $\gamma_{42}$ ) for the young old and the very old suggests that there are statistically significant differences at the 0.05 level ( $\Delta\chi^2_{(1)} = 5.80 > 3.84$ , see Table 10). This also holds true when the pre-retired old are compared with the very old ( $\Delta\chi^2_{(1)} = 5.30 > 3.84$ ). Thus, the relationship between gender and depressive symptoms is quite different for those age 75 or older and those under 75, after controlling for marital status, education, household income, social support, and sense of control. Thus, gender

differences in depressive symptoms among the three groups of older people are neither simple nor straight-forward.

## CHAPTER 7. DISCUSSION AND CONCLUSIONS

This study is based on stress theory, the life course perspective, and previous studies of aging and depressive symptoms. One of the major purposes of this study is to explore the relationships among self-reported physical health, resources (household income, social support, and sense of control), and depressive symptoms among the elderly while controlling for marital status, gender, and education. A special emphasis is placed on diversity among three groups of elderly: the pre-retired old, the young old, and the very old.

This study provides partial support for the general hypothesis of aging and depression. Specifically, this study supports hypothesis 1.1C that the very old are significantly more likely than the pre-retired old to experience a high level of depressive symptoms. This study, however, fails to support hypotheses 1.1A and 1.1B. The very old are not significantly more depressed than the young old, and the young old are not significantly more depressed than the pre-retired old.

In some ways, this study is consistent with the U-shaped pattern of aging and depressive symptoms found by

researchers such as Newmann (1989) and Mirowsky and Ross (1992). It is also consistent with previous literature which suggests that the young old enjoy continuity from the pre-retired period, but that the very old consist of a unique group that need separate attention from the pre-retired old or the young old (Bould et al., 1989).

Contrary to many studies, this study finds that the young old are slightly less depressed than the pre-retired old. One possible explanation for this finding is that compared with the young old, fewer pre-retired old experience some of the stressors in the model such as having poor physical health or becoming widowed. Thus, poor physical health or widowhood may be less normative for the pre-retired old than for the young old and the very old, so the former are less prepared and also have less peer support to deal with these stressors (Hagestad, 1988). Even though it is consistent with some literature which suggests that retirement may be a second golden age, this pattern needs more exploration in the future.

This study provides evidence to partially support the first part of the exposure hypotheses. Specifically, analysis indicates support for hypotheses 2.1A and 2.1C. The very old are significantly more likely than the pre-retired old and than the young old to perceive good

physical health. This study, however, fails to support hypothesis 2.1B because the young old are not significantly more likely than the pre-retired old to perceive their health as poor.

This study strongly supports the second part of the general exposure hypothesis that poorer physical health is significantly related to a higher level of depressive symptoms after controlling for marital status, gender, education, household income, social support, and sense of control. More specifically, this study supports hypotheses 2.2A, 2.2B, and 2.2C. This is consistent with previous literature which suggests that the prevalence of poor physical health is one of the most important stressors that affects depressive symptoms of elderly (e.g., Bould et al., 1989; Mirowsky and Ross, 1992).

This study fails to provide any support for hypotheses 3.1A, 3.1B, and 3.1C. There are no significant differences in the magnitude of the direct impact of self-reported overall physical health on depressive symptoms among three groups of elderly after controlling for marital status, gender, education, household income, social support, and sense of control. Thus, there is little evidence to support the hypotheses that the very old are more vulnerable than the young old to poor

physical health, and that the young old are more vulnerable than the pre-retired old. Thus, there is no support for the specific vulnerability hypotheses, at least when self-reported physical health is considered as the major stressor. This is consistent with some of the previous literature in this area. According to Gatz and Hurwicz (1990), the impact of poor physical health on depressive symptoms is the same for four different age groups (20 to 39, 40 to 54, 55 to 69, and 70 to 98). Similarly, the impact is the same for three groups of older people (65 to 74, 75 to 84, and 85 or older) in a study by Mitchell and his colleagues (1993).

The distribution of resources such as household income, social support, and sense of control, and the relationship among resources and depressive symptoms are very complicated among the elderly. In each case, they depend on the subgroup of elderly and the specific resource under consideration. More specifically, this study supports hypotheses 4.1A1, 4.1A2, and 4.1A3. Thus, the very old are significantly more likely than the pre-retired old and the young old to have low household income. The young old are also significantly more likely than the pre-retired old to have low household income. This study, however, fails to support hypotheses 4.2A1,



4.2A2, and 4.2A3. Lower household income is not significantly associated with a higher level of depressive symptoms for each of the three groups, after controlling for marital status, gender, education, physical health, social support, and sense of control.

This study fails to support hypotheses 4.1B1, 4.1B2, and 4.1B3. Thus, there is no statistically significant difference in the level of perceived social support among the three old age groups. This study also fails to support hypothesis 4.2B1, so a lower level of social support is not significantly related to a higher level of depressive symptoms among the pre-retired old, after controlling for marital status, gender, education, physical health, household income, and sense of control. This study does provide evidence to support hypotheses 4.2B2 and 4.2B3, because a lower level of social support is associated with significantly a higher level of depressive symptoms among the young old and the very old, after controlling for various stressors and resources in the basic model.

This study supports hypotheses 4.1C1, 4.1C2, and 4.1C3. The very old are significantly more likely than the pre-retired old and the young old to have a low sense of control over their lives, and the young old are significantly more likely than the pre-retired old to have

a low sense of control. This study also provides evidence to support hypotheses 4.2C2 and 4.2C3 because a lower sense of control is related to a significantly higher level of depressive symptoms among the young old and the very old, after controlling for various stressors and resources. This study, however, fails to support hypothesis 4.2C1, so a lower sense of control is not significantly related to a higher level of depressive symptoms among the pre-retired old, after controlling for marital status, gender, education, physical health, household income, and social support.

In summary, both social and psychological resources are very important for the young old, and especially for the very old, because lower levels of support and control are significantly related to a higher level of depressive symptoms. This study, however, fails to support several specific hypotheses. Household income does not have a significant direct impact on the level of depressive symptoms for any of the three groups of older people. A lower level of social support is not significantly related to a higher level of depressive symptoms for the pre-retired old, when controlling for marital status, gender, education, household income, and sense of control. A lower sense of control tends to be related to more depression

among the pre-retired old, but this relationship is not statistically significant.

These results suggest the importance of examining various types of resources separately for each of the three groups of elderly. This is also consistent with an emerging view that resources are not unlimited. Older people ask others for assistance only after they are unable to solve problems on their own or only when such assistance may increase their feelings of sense of control. Thus, the social support process is "a tenuous balance between concern and resentment as well as dependence and self-assertedness" (Krause and Borawski-Clark, 1994:257).

There are no significant differences in direction or magnitude of the relationship between the stressor (self-reported overall physical health) and resources (household income, social support, and sense of control) among the three groups of older people. The findings only show support for a consistent pattern that poor physical health tends to erode household income, perceived social support, and sense of control for each of the three groups of elderly. Moreover, the indirect effect of physical health on depression through household income, social support,

and sense of control is not significant for the three age groups.

Data analysis indicates that gender differences in depressive symptoms among the three groups of older people are neither simple nor straight-forward. For the pre-retired old and the young old, women tend to have a higher level of depressive symptoms than men, after controlling for marital status, education, self-reported physical health, household income, social support, and sense of control. For the very old, men are significantly more depressed than women. This complicated relationship between gender and depressive symptoms for men and women has been found in previous research. In a review of the literature on depression among the elderly, Gurland (1976) suggests that gender differences become less pronounced for older men and older women because depression increases more among men than among women during this period of the life course. Haug and Folmar (1986) find that although older women in general have a lower quality of life than older men, there are exceptions. Two-thirds of the men age 92 and older in this study show evidence of psychological distress, while only one-third of the women age 92 or older show such distress. Thus, under certain conditions men may have higher rates of depressive symptoms than

women. For example, Rosenfield (1980) finds that in nontraditional marital relationships, husbands have a higher level of depressive symptoms than wives.

This study has several advantages over other research in this area. First, this study is explicitly guided by stress theory and the life course perspective. Thus, there is an explicit recognition of heterogeneity among stressors, consequences of stressors, and the contingencies that shape the impact of stressors. It also pays sufficient attention to the social contexts that are related to the concurrence and consequences of stressors. Thus, stress theory and the life course perspective provide a strategic context for studying relationships among health, household income, social support, sense of control, and depressive symptoms among the elderly. The use of specific stressors, more than one resource, and three groups of people age 55 or older, proves to be an effective approach in the study of these complicated stressor-resources-depression relationships. If we examine the three groups of older people as a single group, many of the important findings in this study would not have been detected. Because of an emphasis on analyzing and interpreting diverse relationships among stressors, resources, and stress outcomes, this study reveals and

accounts for the complex relationships among the three components depending on the nature of the stressors, the types of resources, and the life course of the older people under study. Second, this study examines multiple dependent variables in a single model. Third, this study examines both direct and indirect effects of one variable on another. Fourth, this study uses a comparative perspective. Finally, this study focuses on one of the most prevalent stressors among older people, self-reported overall physical health, rather than grouping many irrelevant life events into a single scale.

This study also demonstrates that researchers should not ask research questions that are too general, such as why women (or older people) are more likely to have a high level of depressive symptoms than men (or younger people) or whether social support has an impact on depressive symptoms. Rather, researchers should ask more focused research questions, such as how or when women (or older people) are more likely to have a high level of depressive symptoms than men (or younger people), why and under what conditions men (or younger people) are more likely to have a high level of depressive symptoms than women (or older people), or how and when social support may have an impact on depressive symptoms. The second approach is more likely

to reflect complicated social realities. It is also consistent with the life course perspective, which argues that the life course of people (men or women, young or old) is diverse and heterogeneous. Consequently, it is very difficult to make any simple generalizations about the lives of older people, including their mental health.

This study amplifies our understanding of the complicated relationship among stressors, resources and depressive symptoms among three groups of older people. For example, it suggests why the very old are more depressed than the young old or the pre-retired old. First, the very old are more likely to be exposed to poor physical health than the other two groups of elderly. Second, faced with higher exposure to poor physical health, the very old do not have a significantly higher level of social resources (social support), but have instead, significantly fewer economic (household income) and psychological resources (sense of control). Poor physical health not only has a significant direct negative impact on the level of depressive symptoms, but also tends to erode resources, especially psychological resources. Thus, the most general conclusion from the previous analyses is that after controlling for sociodemographic variables, greater exposure to poor physical health,

rather than greater vulnerability, is the important determinant of depression among the very old, and fewer coping resources also play an important role in this process.

This research is consistent with previous studies which find that for the elderly, increases in depression are limited to the combined condition of few resources and a high level of undesirable conditions. According to Murrell and Norris (1984:446), the quality of a group is "a function of fit among the group's particular characteristics (e.g. age or gender); its environmental demands and opportunities, including life events; and its total stock of resources for dealing with its environment. The stronger the groups' resources relative to its characteristics and environment, the higher the quality of life". This suggests that the very old are more depressed because there is a misfit between their environmental demands and their resources.

Several limitations of this study are important to consider when reviewing the findings. First, this study is based on regional data, thus, generalizations to the whole country should be made cautiously. Second, the data in this study is cross-sectional, so it cannot be used to demonstrate the validity of the causal-order assumptions



made in the basic model in Figure 1. Future studies should use longitudinal data to cross-validate the findings. Third, the sample size for the very old in this study is still relatively small, so the statistical power may be low for the very old. Obviously, it will be very important to replicate the findings of this study with a larger sample of the very old and longitudinal data. Fourth, since social support is multi-dimensional, the present study is limited because it examines only one type of social support, perceived social support. Thus, the findings should not be generalized to include the effects of other types of social support (e.g., Ensel and Lin, 1991b). Fifth, since the present study examines only one type of stressor, self-reported physical health, it should not be generalized to include the effects of other stressors. Finally, besides prevalence, the timing of transitions to stressors may also be important for mental health among older people, and may be especially important in explaining why the pre-retired old tend to think their physical health is poorer than the young old. According to the life course perspective, both prevalence and timing of a transition to poor physical health are important when considering the impact of stressors on the mental health of older people. For example, studies suggest that a

transition to poor health or the death of a spouse in the fifth decade of life may be more stressful than such a transition in the sixth decade of life, because it is "off-time" and less expected. Thus, the same stressor may have a different impact on people in a different stage of the life course due to two factors: whether the transition to the stressor is on-time or off-time and its prevalence (Hagestad, 1988).

In spite of these limitations, this study has social, economic, and political implications. Since there is so much heterogeneity among older people, they should not be treated alike. Whatever social, economic, and political policies or programs that are designed for them should reflect such diversity. For example, we should provide opportunities for the able or healthy old to make any contribution they can to the society. This is very important, and it will become even more important in the future, as the aging of our society is inevitable and as future cohorts of older Americans will contain an "increasing number of individuals who are well-educated, economically secure, politically astute, and in relatively good health" (Uhlenberg, 1992:470). The elderly are part of our social resources and our society's treasure, so we should not waste them. Rather, we should make good use of

them. We can work to develop programs for the able elderly to help the frail elderly, or to take care of young children. In this way, they will be kept busy and healthy. According to activity theory and continuity theory, this is good for their health and mental health. Moreover, they can continue to make contributions to their families, their communities, or their society. This may also be one of many important ways to increase the productivity of the elderly and reduce the burden of supporting a growing older population.

Just because some of the elderly, especially the young old, are more healthy and well-off than ever before does not necessarily indicate that none of the elderly, especially the very old, have difficulties (e.g., Guralnik and Simonsick, 1993). This is because the elderly are greatly diversified. As Mirowsky and Ross (1992:200) note:

that the very old have higher levels of depressive symptoms is not a "scientific myth", as claimed by Feinson (1985). Things may be worse than it appears in the study, because in all the studies, attrition of the most depressed elderly, through death, institutionalization, and incapacitation, may attenuate the apparent rise of depression in old age.

Thus, we should not forget the frail elderly, especially after they have contributed all their lives to their families or to their society. Adequate programs or policies should be available to make their lives as

comfortable as possible, and to make sure that the very old, as a unique group of older people, maintain good physical health and have sufficient resources when they need them the most.

This study also reminds us to pay special attention to the psychological dimensions of poor physical health and the social context where it occurs (Schulz and Williamson, 1993). This is especially important when we take into consideration of the prevalence of long-term disability for an aging society like the United States. Maintaining good physical health is one of the keys to maintaining older people's mental health. Various resources become essential for older people, even if they seldom needed them in their lives before, since those who are older, who have poor physical health, have weaker support, and have a lower level of sense of control are particularly at risk for psychological distress.

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